British Association of Dermatologists and British Photodermatology Group
***draft* guidelines for narrowband ultraviolet B 2021**

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Appendix A: Review Protocol

CLINICAL QUESTION 1: Skin diseases excluding photodermatoses

Component	Description
Review question	In people with skin diseases†, what are the clinical effectiveness/efficacy, safety and tolerability of narrowband ultraviolet B phototherapy (NB-UVB) as monotherapy or in combination with another treatment compared with, other light-based therapy including the excimer laser and lamp, topical therapy, retinoid therapy, conventional systemic immunosuppression/immunomodulation, biological therapy, placebo, no treatment or NB-UVB in combination with a different treatment
Objectives	The aim of this review is to assess the clinical effectiveness/efficacy, safety and tolerability of NB-UVB as monotherapy or in combination with another treatment compared with other light-based therapy including the excimer laser and lamp, topical therapy, retinoids therapy, conventional systemic immunosuppression/modulation, biological therapy, placebo, no treatment or NB-UVB in combination with a different treatment
Population	All people with skin diseases being treated primarily for their skin disease
Strata	The following groups/interventions will be considered separately only if data is available: • Children (0-12 years) and young people (13-17 years) • Hospital vs. home use • Psoriasis • Vitiligo • Eczema/atopic dermatitis • Palmoplantar dermatoses (hand and foot dermatoses) • Lichen Planus • Mycosis fungoides/Cutaneous T Cell Lymphoma (CTCL) • Pityriasis lichenoides • Prurigo • Pruritus • Chronic spontaneous Urticaria • Other dermatoses
Subgroups	The following factors will be considered for subgroup analysis *if heterogeneity is present*: • Treatment regimen
Intervention	• NB-UVB (TL-01 and other similar spectrum phototherapy sources) • NB-UVB (TL-01 and other similar spectrum phototherapy sources) in combination with another therapy
Comparison	• No treatment • Placebo • NB-UVB (TL-01 and other similar spectrum phototherapy sources) • NB-UVB (TL-01 and other similar spectrum phototherapy sources) in combination with another therapy • Psoralen Ultraviolet A (PUVA) • Ultraviolet A -1 (UVA-1)

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	• Excimer laser/lamp) • Topical therapy (e.g. corticosteroids, sunscreen) • Systemic immunosuppression/immunomodulation • Biological therapy • Retinoids
Outcomes	***Critical*** • Disease improvement (e.g. Psoriasis Area Severity Index [PASI] 75, Eczema Area Severity Index [EASI] 50, ≥50% repigmentation) (9) • Serious adverse events – acute/chronic (9) • Change in psychological well-being / quality of life (e.g. Dermatology Life Quality Index [DLQI]) (9) • Disease-specific physician assessment (e.g. PASI, EASI, Severity Weighted Assessment Tool [SWAT] (for CTCL), Physician Global Assessment [PGA]) (8) • Disease-specific patient self-assessment (8) ***Important*** • Sustained clearance/benefit (e.g. ≥6 months) (6) • Treatment tolerability (6) • Reduction of other therapy (6) • Convenience of treatment (5) ***Less important*** • Minor adverse events (3)
Study design	• Randomised controlled trials (RCTs) or systematic reviews • Controlled trials or cohort studies • Case-control studies/case series/case reports

Population size and directness	• Sample size
	  ○ psoriasis, eczema, vitiligo or palmoplantar dermatoses (n≥10)
	  ○ other skin diseases (n≥1)
	• Studies with indirect populations will not be considered

Setting	• Primary care • Secondary care • Tertiary care • Community settings in which NHS care is received • Home
Search Strategy	See appendix U
Review strategy	Appraisal of methodological quality • The methodological quality of each study will be assessed using NICE checklists and the quality of the evidence will be assessed by GRADE for each outcome
†Including but not limited to: alopecia areata, eczema/atopic dermatitis, graft vs host disease, lichen planus, progressive macular hypomelanosis, mastocytosis, morphoea/localised scleroderma, mycosis fungoides/CTCL, necrobiosis lipoidica like/granuloma annulare/giant cell granuloma, notalgia paraesthetica, palmoplantar dermatoses, perforating dermatosis/Kyrle disease, pityriasis lichenoides, pityriasis rosea, prurigo, pruritus, psoriasis, seborrheic dermatitis, chronic spontaneous urticaria & vitiligo.	

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CLINICAL QUESTION 2: Photodermatoses

Component	Description
Review question	In people with photodermatoses†, what are the clinical effectiveness/efficacy, safety and tolerability of NB-UVB, asmonotherapy or in combination with another treatment, used prophylactically and to treat active disease, compared with photoprotective measures including sunscreen, topical and oral corticosteroids, other light-based therapy, systemic immunosuppression, other topical and oral anti-inflammatory/immunomodulator agents, biological therapy, placebo, no treatment or NB-UVB in combination with a different treatment
Objectives	The aim of this review is to assess the clinical effectiveness/efficacy, safety and tolerability of NB-UVB as monotherapy or in combination with another treatment compared with sunscreen use, topical and oral corticosteroids, other light-based therapy, systemic immunosuppression, other topical and oral anti-inflammatory agents and immunomodulators, biologic therapy, placebo, no treatment or NB-UVB in combination with another treatment
Population	All people with photodermatoses† being treated primarily for their skin disease
Strata	The following groups/interventions will be considered separately only if data is available: • Children (0-12 years) and young people (13-17 years) • Hospital vs home use • Photodermatoses†
Subgroups	The following factors will be considered for subgroup analysis *if heterogeneity is present*: • Treatment regimen
Intervention	• NB-UVB (TL-01 and other similar spectrum phototherapy sources) • NB-UVB (TL-01 and other similar spectrum phototherapy sources) in combination with another therapy
Comparison	• No treatment • Placebo • NB-UVB (TL-01 and other similar spectrum phototherapy sources) • NB-UVB (TL-01 and other similar spectrum phototherapy sources) in combination with another therapy • PUVA/UVA-1 • Topical therapy (e.g. corticosteroids, sunscreen) • Systemic immunosuppression • Other anti-inflammatory agents and immunomodulators' (e.g. antioxidants, beta-carotene, chloroquine/hydroxychloroquine, dietary fish oils) • Biologic therapy (e,g. omalizumab)
Outcomes	***Critical*** • Serious adverse events – acute /chronic (9) • Change in psychological well-being / quality of life (e.g. DLQI) (9) • Disease-specific physician assessment (e.g. global) (8) • Disease-specific patient self-assessment (8)

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	• Change in sun tolerance (7) ***Important*** • Sustained clearance/benefit (6) • Treatment tolerability (6) • Reduction of other therapy (6) • Convenience of treatment (5) ***Less important*** • Minor adverse events (3)
Study design	• RCTs or systematic reviews • Controlled trials or cohort studies • Case-control studies/case series/case reports
Population size and directness	• Sample size (n≥1) • Studies with indirect populations will not be considered
Setting	• Primary care • Secondary care • Tertiary care • Community settings in which NHS care is received • Home
Search Strategy	See appendix U
Review strategy	Appraisal of methodological quality • The methodological quality of each study will be assessed using NICE checklists and the quality of the evidence will be assessed by GRADE for each outcome
†Including but not limited to chronic actinic dermatitis (CAD), erythropoietic protoporphyria (EPP), hydroa vacciniforme (HV), photoaggravated eczema, polymorphic light eruption (PLE), actinic prurigo (AP) & solar urticaria (SU).	

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Appendix B: Forest plots

NB: If the outcome being measured is positive i.e. clear/nearly clear the intervention will appear on the right-hand axis of the forest plots. If negative i.e. serious adverse events, the intervention will appear on the left-hand axis of the forest plots.

B.1 Psoriasis

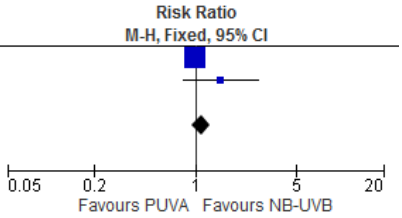
NB-UVB vs PUVA

Critical

Disease improvement: PASI 75 (3 months)

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Dayal, IJDVL 2010	30	30	30	30	80.3%	1.00 [0.94, 1.07]
Nair, Clin Epidemiol Glob Health, 2015	12	16	7	14	19.7%	1.50 [0.83, 2.72]
Total (95% CI)		**46**		**44**	**100.0%**	**1.10 [0.95, 1.27]**
Total events	42		37			

Heterogeneity: Chi² = 9.37, df = 1 (P = 0.002); I² = 89%
Test for overall effect: Z = 1.27 (P = 0.21)

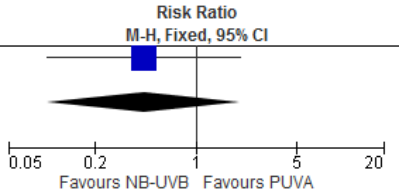


Less important

Minor adverse events: erythroderma

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Nair, Clin Epidemiol Glob Health, 2015	2	16	4	14	100.0%	0.44 [0.09, 2.04]
Total (95% CI)		**16**		**14**	**100.0%**	**0.44 [0.09, 2.04]**
Total events	2		4			

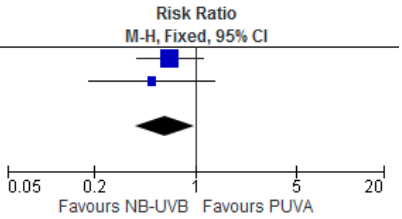
Heterogeneity: Not applicable
Test for overall effect: Z = 1.05 (P = 0.29)



Minor adverse events: Grade II/symptomatic erythema

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Dayal, IJDVL 2010	12	30	18	30	70.7%	0.67 [0.39, 1.13]
Nair, Clin Epidemiol Glob Health, 2015	4	16	7	14	29.3%	0.50 [0.18, 1.36]
Total (95% CI)		**46**		**44**	**100.0%**	**0.62 [0.39, 0.99]**
Total events	16		25			

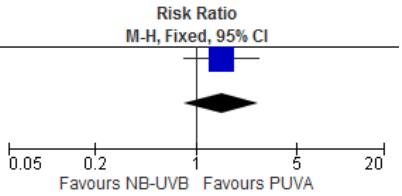
Heterogeneity: Chi² = 0.25, df = 1 (P = 0.61); I² = 0%
Test for overall effect: Z = 2.02 (P = 0.04)



Minor adverse events: pruritus

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Nair, Clin Epidemiol Glob Health, 2015	12	16	7	14	100.0%	1.50 [0.83, 2.72]
Total (95% CI)		**16**		**14**	**100.0%**	**1.50 [0.83, 2.72]**
Total events	12		7			

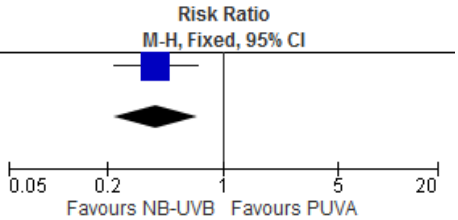
Heterogeneity: Not applicable
Test for overall effect: Z = 1.33 (P = 0.18)



Minor adverse events: nausea and vertigo

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Dayal, IJDVL 2010	9	30	23	30	100.0%	0.39 [0.22, 0.70]
Total (95% CI)		**30**		**30**	**100.0%**	**0.39 [0.22, 0.70]**
Total events	9		23			

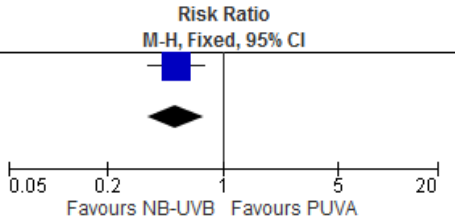
Heterogeneity: Not applicable
Test for overall effect: Z = 3.16 (P = 0.002)



Minor adverse events: headache

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Dayal, IJDVL 2010	14	30	27	30	100.0%	0.52 [0.35, 0.77]
Total (95% CI)		**30**		**30**	**100.0%**	**0.52 [0.35, 0.77]**
Total events	14		27			

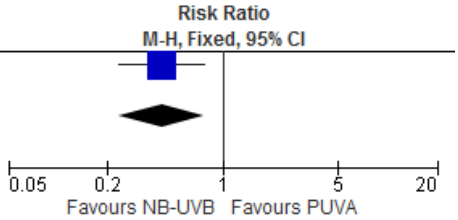
Heterogeneity: Not applicable
Test for overall effect: Z = 3.21 (P = 0.001)



Minor adverse events: diffuse hair loss

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Dayal, IJDVL 2010	9	30	21	30	100.0%	0.43 [0.24, 0.78]
Total (95% CI)		**30**		**30**	**100.0%**	**0.43 [0.24, 0.78]**
Total events	9		21			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.79 (P = 0.005)



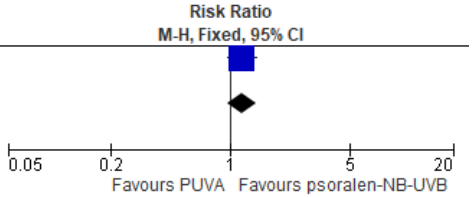
Psoralen-NB-UVB vs PUVA

Critical

Disease improvement: Clearance

Study or Subgroup	Psoralen-NB-UVB Events	Psoralen-NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
de Berker, JAAD 1997	43	50	37	50	100.0%	1.16 [0.95, 1.42]
Total (95% CI)		**50**		**50**	**100.0%**	**1.16 [0.95, 1.42]**
Total events	43		37			

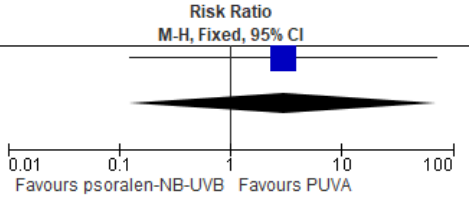
Heterogeneity: Not applicable
Test for overall effect: Z = 1.48 (P = 0.14)



Serious adverse events: painful blistering within lesions, treatment stopped

Study or Subgroup	Psoralen-NB-UVB Events	Psoralen-NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
de Berker, JAAD 1997	1	50	0	50	100.0%	3.00 [0.13, 71.92]
Total (95% CI)		**50**		**50**	**100.0%**	**3.00 [0.13, 71.92]**
Total events	1		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.68 (P = 0.50)

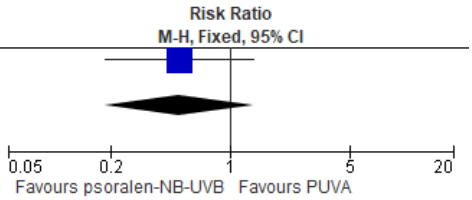


Less Important

Minor adverse events: erythema of sufficient intensity to require 1 or 2 treatments to be missed:

Study or Subgroup	Psoralen-NB-UVB Events	Total	PUVA Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
de Berker, JAAD 1997	5	50	10	50	100.0%	0.50 [0.18, 1.36]
Total (95% CI)		**50**		**50**	**100.0%**	**0.50 [0.18, 1.36]**
Total events	5		10			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.36 (P = 0.17)



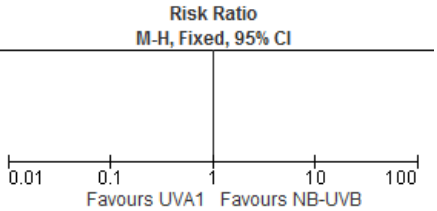
NB-UVB vs UVA1

Critical

Serious adverse events

Study or Subgroup	NB-UVB Events	Total	UVA1 Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhou, Laser Med Sci 2018	0	40	0	40		Not estimable
Total (95% CI)		**40**		**40**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable

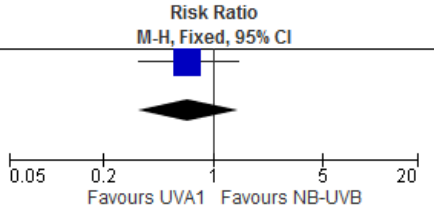


NB: Risk ratio cannot be calculated when there are no events on either arm

Disease-specific physician assessment: Psoriasis Scalp Severity Index (PSSI) response (3 weeks)

Study or Subgroup	NB-UVB Events	Total	UVA1 Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhou, Laser Med Sci 2018	9	40	13	40	100.0%	0.69 [0.33, 1.43]
Total (95% CI)		**40**		**40**	**100.0%**	**0.69 [0.33, 1.43]**
Total events	9		13			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.99 (P = 0.32)

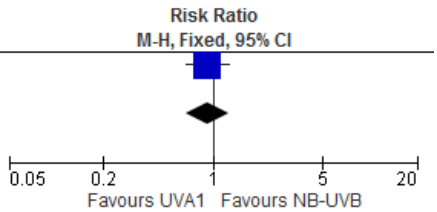


NB: Change of scale

Disease-specific physician assessment: PSSI response (6 weeks)

Study or Subgroup	NB-UVB Events	Total	UVA1 Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhou, Laser Med Sci 2018	25	40	27	40	100.0%	0.93 [0.67, 1.28]
Total (95% CI)		**40**		**40**	**100.0%**	**0.93 [0.67, 1.28]**
Total events	25		27			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.47 (P = 0.64)

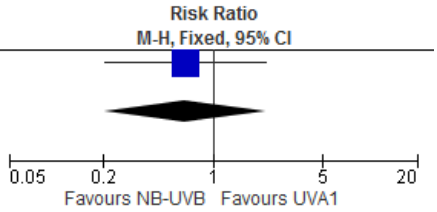


Less important

Minor adverse events: Erythema and mild burning sensation

Study or Subgroup	NB-UVB Events	NB-UVB Total	UVA1 Events	UVA1 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhou, Laser Med Sci 2018	4	40	6	40	100.0%	0.67 [0.20, 2.18]
Total (95% CI)		**40**		**40**	**100.0%**	**0.67 [0.20, 2.18]**
Total events	4		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.67 (P = 0.50)



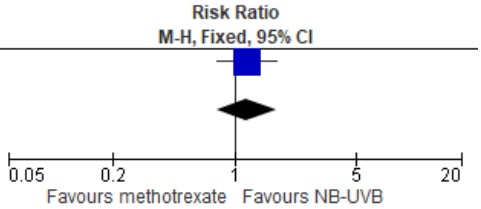
NB-UVB vs methotrexate (cohort)

Critical

Disease-specific physician assessment: global assessment scale (clear or nearly clear)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Methotrexate Events	Methotrexate Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gelfand, AD 2012	34	123	41	174	100.0%	1.17 [0.79, 1.74]
Total (95% CI)		**123**		**174**	**100.0%**	**1.17 [0.79, 1.74]**
Total events	34		41			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.80 (P = 0.42)



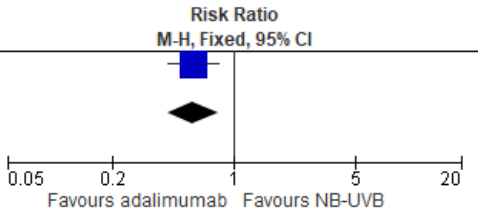
NB-UVB vs adalimumab (cohort)

Critical

Disease-specific physician assessment: global assessment scale (clear or nearly clear)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Adalimumab Events	Adalimumab Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gelfand, AD 2012	34	123	72	152	100.0%	0.58 [0.42, 0.81]
Total (95% CI)		**123**		**152**	**100.0%**	**0.58 [0.42, 0.81]**
Total events	34		72			

Heterogeneity: Not applicable
Test for overall effect: Z = 3.19 (P = 0.001)



N.B. Only 10.6% of patients receiving NB-UVB were receiving the frequency of treatments (i.e., ≥3 times per week) necessary to optimize response, while 11.8% of those taking adalimumab received twice the maintenance dose recommended based on clinical trial data.

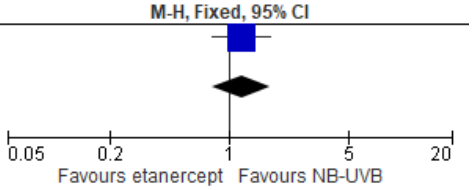
NB-UVB vs etanercept (cohort)

Critical

Disease-specific physician assessment: global assessment scale (clear or nearly clear)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Etanercept Events	Etanercept Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gelfand, AD 2012	34	123	41	174	100.0%	1.17 [0.79, 1.74]
Total (95% CI)		**123**		**174**	**100.0%**	**1.17 [0.79, 1.74]**
Total events	34		41			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.80 (P = 0.42)



N.B. Only 10.6% of patients receiving NB-UVB were receiving the frequency of treatments (i.e., ≥3 times per week) necessary to optimize response, while 36.1% of patients taking etanercept received twice the maintenance dose recommended based on clinical trial data.

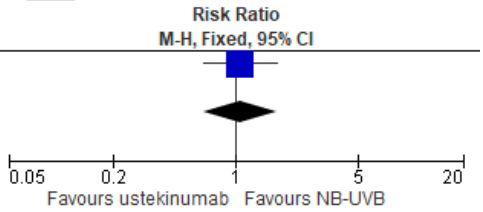
NB-UVB vs ustekinumab (cohort)

Critical

Disease-specific physician assessment: global assessment scale (clear or nearly clear)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Ustekinumab Events	Ustekinumab Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gelfand, AD 2012	34	123	19	73	100.0%	1.06 [0.66, 1.72]
Total (95% CI)		**123**		**73**	**100.0%**	**1.06 [0.66, 1.72]**
Total events	34		19			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.25 (P = 0.81)



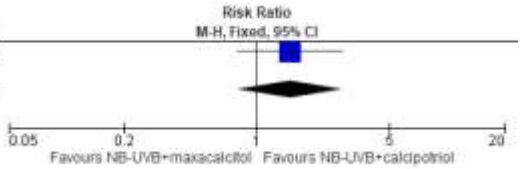
Combination NB-UVB + calcipotriol vs combination NB-UVB + maxacalcitol (cohort)

Critical

Disease-specific physician assessment: PASI improvement (complete remission)

Study or Subgroup	NB-UVB+calcipotriol Events	NB-UVB+calcipotriol Total	NB-UVB+maxacalcitol Events	NB-UVB+maxacalcitol Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Noborio, PPP 2006	10	12	5	9	100.0%	1.50 [0.79, 2.84]
Total (95% CI)		**12**		**9**	**100.0%**	**1.50 [0.79, 2.84]**
Total events	10		5			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.25 (P = 0.21)

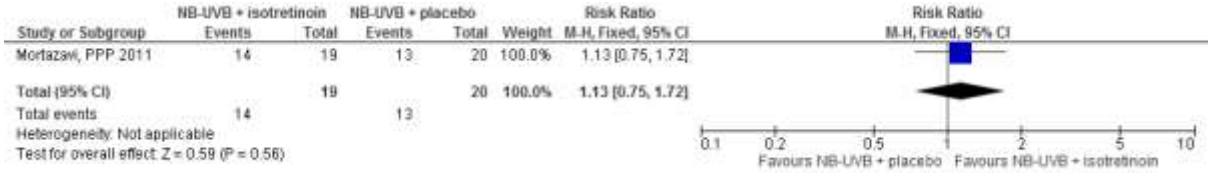


DRAFT

Combination NB-UVB + isotretinoin vs NB-UVB + placebo

Critical

Disease improvement: clear/nearly clear (14 weeks)

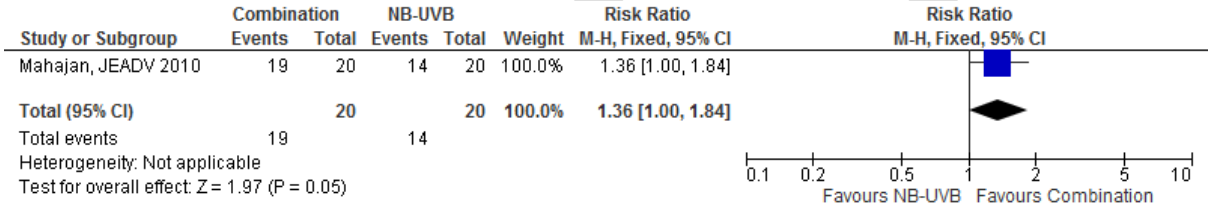


NB: Note change in scale

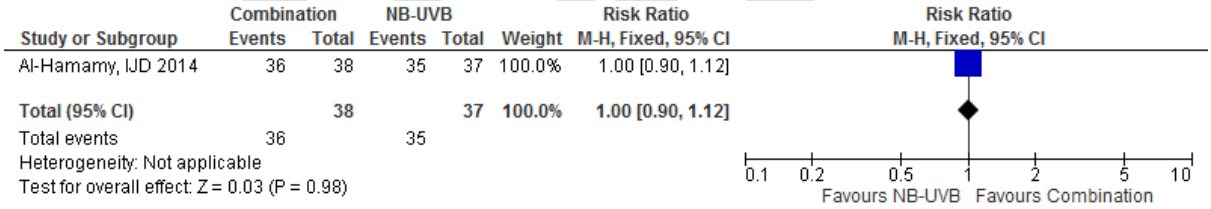
Combination NB-UVB + methotrexate vs NB-UVB monotherapy

Critical

Disease improvement: PASI 75

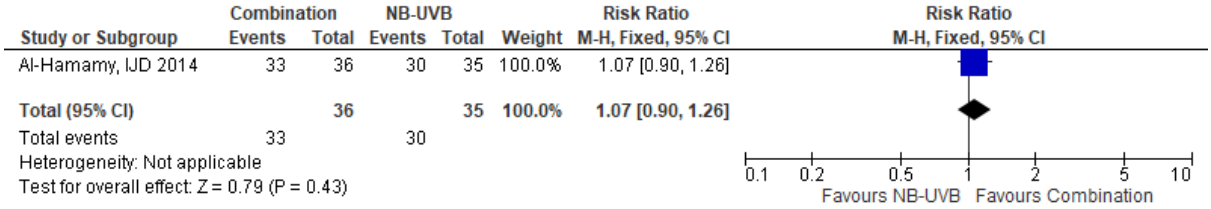


Disease improvement: PASI 90



Important

Sustained clearance: 1 year

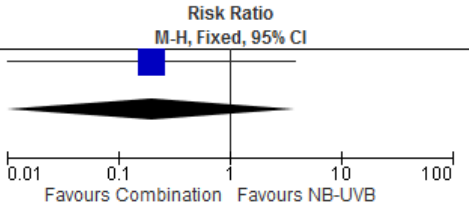


Less important

Minor adverse events: erythema (fissuring and pustulation over the lesions)

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Mahajan, JEADV 2010	0	20	2	20	100.0%	0.20 [0.01, 3.92]
Total (95% CI)		**20**		**20**	**100.0%**	**0.20 [0.01, 3.92]**
Total events	0		2			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.06 (P = 0.29)

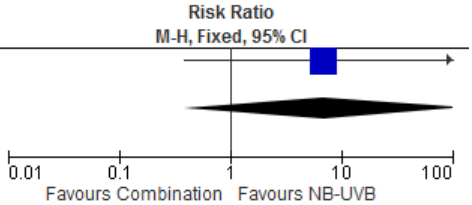


NB: Change in scale

Minor adverse events: nausea

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Mahajan, JEADV 2010	3	20	0	20	100.0%	7.00 [0.38, 127.32]
Total (95% CI)		**20**		**20**	**100.0%**	**7.00 [0.38, 127.32]**
Total events	3		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.31 (P = 0.19)



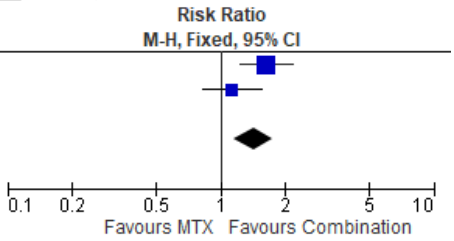
Combination NB-UVB + methotrexate vs methotrexate monotherapy

Critical

Disease improvement: PASI 90

Study or Subgroup	Combination Events	Combination Total	MTX Events	MTX Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Al-Hamamy, IJD 2014	36	38	22	38	59.5%	1.64 [1.24, 2.17]
Soliman, JDT 2015	17	20	15	20	40.5%	1.13 [0.83, 1.55]
Total (95% CI)		**58**		**58**	**100.0%**	**1.43 [1.16, 1.77]**
Total events	53		37			

Heterogeneity: Chi² = 3.01, df = 1 (P = 0.08); I² = 67%
Test for overall effect: Z = 3.33 (P = 0.0009)

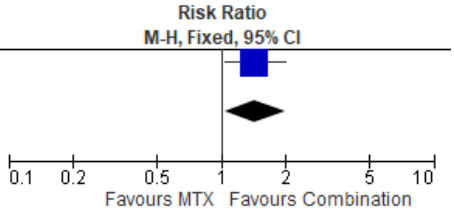


<u>Important</u>

<u>Sustained clearance: 1 year</u>

Study or Subgroup	Combination Events	Combination Total	MTX Events	MTX Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Al-Hamamy, IJD 2014	33	36	14	22	100.0%	1.44 [1.03, 2.01]
Total (95% CI)		**36**		**22**	**100.0%**	**1.44 [1.03, 2.01]**
Total events	33		14			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.16 (P = 0.03)

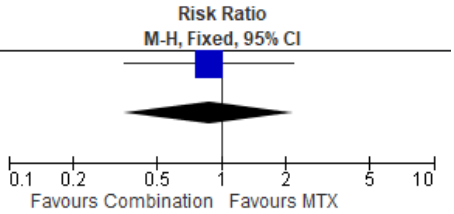


Less important

Minor adverse events: nausea

Study or Subgroup	Combination Events	Combination Total	MTX Events	MTX Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Al-Hamamy, IJD 2014	7	38	8	38	100.0%	0.88 [0.35, 2.17]
Total (95% CI)		**38**		**38**	**100.0%**	**0.88 [0.35, 2.17]**
Total events	7		8			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.29 (P = 0.77)



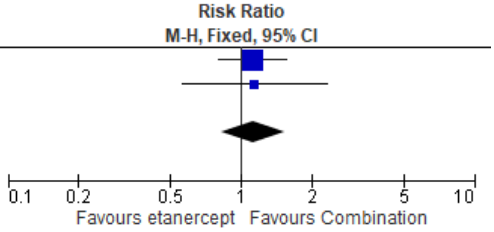
Combination NB-UVB + etanercept vs etanercept monotherapy

Critical

Disease improvement: ≥PASI75 (24 weeks: all subjects received 50 mg of etanercept twice weekly for the first 12 weeks, randomised at 12 weeks)

Study or Subgroup	Combination Events	Combination Total	Etanercept Events	Etanercept Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lynde, JDT 2012	25	37	23	38	76.4%	1.12 [0.79, 1.57]
Park, JEADV 2013	8	15	7	15	23.6%	1.14 [0.56, 2.35]
Total (95% CI)		**52**		**53**	**100.0%**	**1.12 [0.82, 1.53]**
Total events	33		30			

Heterogeneity: Chi² = 0.00, df = 1 (P = 0.95); I² = 0%
Test for overall effect: Z = 0.73 (P = 0.47)

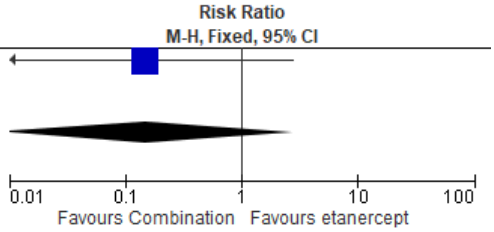


NB: Lynde, JDT 2012, only psoriasis patients who had not reached PASI 90 after 12 weeks on etanercept were included

Serious adverse events

Study or Subgroup	Combination Events	Combination Total	Etanercept Events	Etanercept Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lynde, JDT 2012	0	37	3	38	100.0%	0.15 [0.01, 2.74]
Park, JEADV 2013	0	15	0	15		Not estimable
Total (95% CI)		**52**		**53**	**100.0%**	**0.15 [0.01, 2.74]**
Total events	0		3			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.28 (P = 0.20)

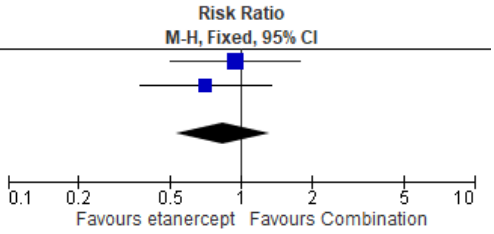


NB: None of these serious adverse events was thought to be related to treatment

Disease-specific physician assessment: PGA (24 weeks: all subjects received 50 mg of etanercept twice weekly for the first 12 weeks, randomised at 12 weeks)

Study or Subgroup	Combination Events	Combination Total	Etanercept Events	Etanercept Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lynde, JDT 2012	12	37	13	38	56.2%	0.95 [0.50, 1.80]
Park, JEADV 2013	7	15	10	15	43.8%	0.70 [0.37, 1.34]
Total (95% CI)		**52**		**53**	**100.0%**	**0.84 [0.53, 1.33]**
Total events	19		23			

Heterogeneity: Chi² = 0.44, df = 1 (P = 0.51); I² = 0%
Test for overall effect: Z = 0.74 (P = 0.46)



NB: Lynde, JDT 2012, only psoriasis patients who had not reached PASI 90 after 12 weeks on etanercept were included

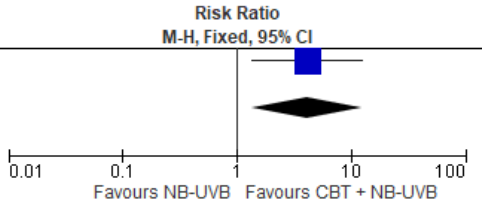
Combination NB-UVB + cognitive-behavioural therapy (CBT) vs NB-UVB monotherapy

Critical

Disease improvement: PASI 75 (8 weeks)

Study or Subgroup	CBT + NB-UVB Events	CBT + NB-UVB Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Piaserico, ADV 2016	13	23	3	22	100.0%	4.14 [1.36, 12.59]
Total (95% CI)		**23**		**22**	**100.0%**	**4.14 [1.36, 12.59]**
Total events	13		3			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.51 (P = 0.01)

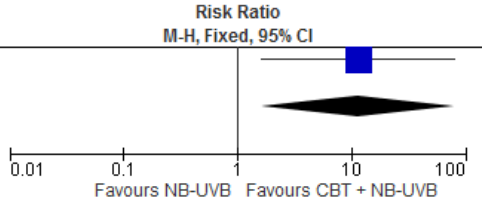


NB: Change of scale

Disease improvement: PASI 75 (12 weeks, 4 weeks follow-up)

Study or Subgroup	CBT + NB-UVB Events	CBT + NB-UVB Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Piaserico, ADV 2016	12	23	1	22	100.0%	11.48 [1.63, 81.04]
Total (95% CI)		**23**		**22**	**100.0%**	**11.48 [1.63, 81.04]**
Total events	12		1			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.45 (P = 0.01)



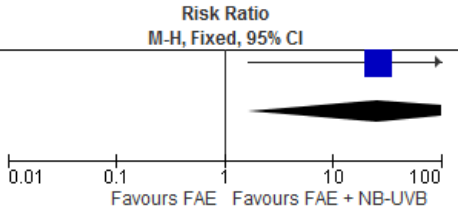
Combination NB-UVB + fumaric acid esters (FAE) vs FAE

Critical

Disease improvement: PASI 75 (6 weeks)

Study or Subgroup	FAE + NB-UVB Events	FAE + NB-UVB Total	FAE Events	FAE Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Tzaneva, BJD 2018	11	14	0	16	100.0%	26.07 [1.67, 405.71]
Total (95% CI)		**14**		**16**	**100.0%**	**26.07 [1.67, 405.71]**
Total events	11		0			

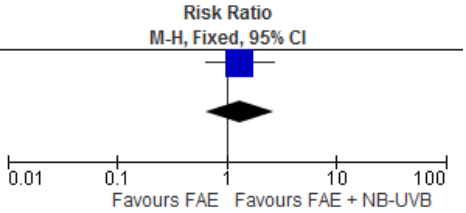
Heterogeneity: Not applicable
Test for overall effect: Z = 2.33 (P = 0.02)



Disease improvement: PASI 75 (6 months)

Study or Subgroup	FAE + NB-UVB Events	FAE + NB-UVB Total	FAE Events	FAE Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Tzaneva, BJD 2018	8	14	7	16	100.0%	1.31 [0.64, 2.68]
Total (95% CI)		**14**		**16**	**100.0%**	**1.31 [0.64, 2.68]**
Total events	8		7			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.73 (P = 0.47)

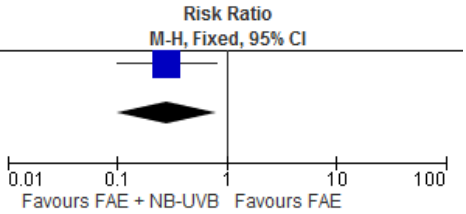


Less important

Minor adverse events: Gastrointestinal complaints

Study or Subgroup	FAE + NB-UVB Events	Total	FAE Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Tzaneva, BJD 2018	3	14	12	16	100.0%	0.29 [0.10, 0.81]
Total (95% CI)		**14**		**16**	**100.0%**	**0.29 [0.10, 0.81]**
Total events	3		12			

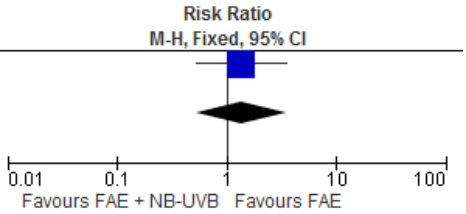
Heterogeneity: Not applicable
Test for overall effect: Z = 2.36 (P = 0.02)



Minor adverse events: Lymphopenia

Study or Subgroup	FAE + NB-UVB Events	Total	FAE Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Tzaneva, BJD 2018	6	14	5	16	100.0%	1.37 [0.53, 3.53]
Total (95% CI)		**14**		**16**	**100.0%**	**1.37 [0.53, 3.53]**
Total events	6		5			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.65 (P = 0.51)



DRAFT

B.2 Vitiligo

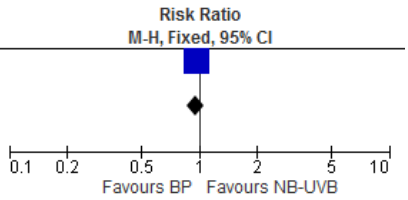
NB-UVB (BioSkin®) vs betamethasone dipropionate monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	betamethasone dipropionate Events	betamethasone dipropionate Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	92	100	22	23	100.0%	0.96 [0.87, 1.07]
Total (95% CI)		**100**		**23**	**100.0%**	**0.96 [0.87, 1.07]**
Total events	92		22			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.73 (P = 0.47)



NB: Note change in scale

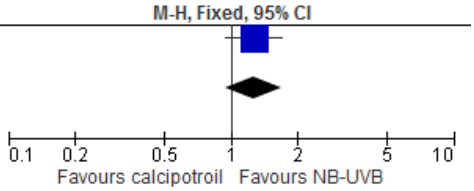
NB-UVB (BioSkin®) vs calcipotriol ointment monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	calcipotriol Events	calcipotriol Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	92	100	13	18	100.0%	1.27 [0.95, 1.71]
Total (95% CI)		**100**		**18**	**100.0%**	**1.27 [0.95, 1.71]**
Total events	92		13			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.62 (P = 0.10)



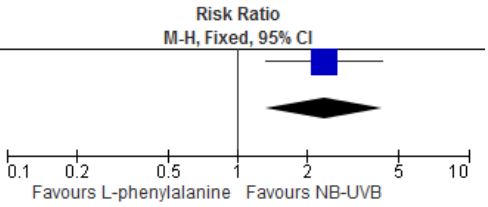
NB-UVB (BioSkin®) vs L-phenylalanine cream monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	L-phenylalanine Events	L-phenylalanine Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	92	100	7	18	100.0%	2.37 [1.32, 4.23]
Total (95% CI)		**100**		**18**	**100.0%**	**2.37 [1.32, 4.23]**
Total events	92		7			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.90 (P = 0.004)



DRAFT

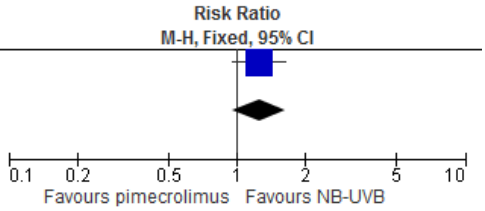
NB-UVB (BioSkin®) vs pimecrolimus monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	pimecrolimus Events	pimecrolimus Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	92	100	14	19	100.0%	1.25 [0.95, 1.64]
Total (95% CI)		**100**		**19**	**100.0%**	**1.25 [0.95, 1.64]**
Total events	92		14			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.58 (P = 0.11)



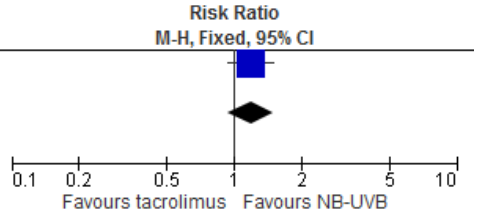
NB-UVB (BioSkin®) vs tacrolimus monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	tacrolimus Events	tacrolimus Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	92	100	17	22	100.0%	1.19 [0.94, 1.50]
Total (95% CI)		**100**		**22**	**100.0%**	**1.19 [0.94, 1.50]**
Total events	92		17			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.46 (P = 0.14)



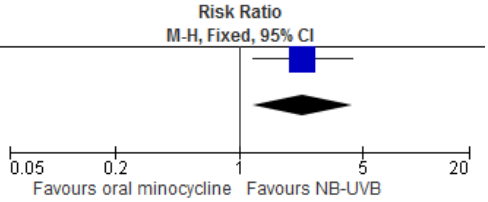
NB-UVB vs oral minocycline (cohort)

Critical

Disease-specific physician assessment: Vitiligo disease activity score (VIDA) 0, -1 after 12 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	Oral minocycline Events	Oral minocycline Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Siadat, DRP 2014	16	21	7	21	100.0%	2.29 [1.19, 4.38]
Total (95% CI)		**21**		**21**	**100.0%**	**2.29 [1.19, 4.38]**
Total events	16		7			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.49 (P = 0.01)

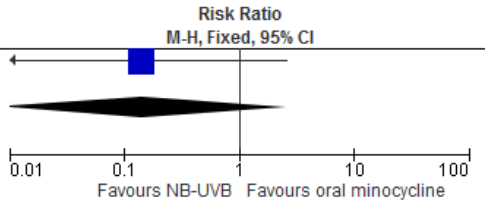


Less important

Minor adverse events (oral mucosal pigmentation, gastrointestinal complaint, and headache)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Oral minocycline Events	Oral minocycline Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Siadat, DRP 2014	0	21	3	21	100.0%	0.14 [0.01, 2.61]
Total (95% CI)		**21**		**21**	**100.0%**	**0.14 [0.01, 2.61]**
Total events	0		3			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.31 (P = 0.19)



DRAFT

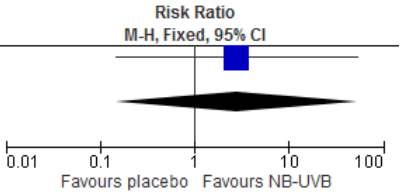
NB-UVB (hand-held unit used at home by patient/carer) vs placebo (hand-held unit used at home by patient/carer)

Critical

Disease improvement: ≥50% repigmentation in patients at 4 months (all at least 75%)

Study or Subgroup	Hand-held NB-UVB Events	Hand-held NB-UVB Total	Hand-held control Events	Hand-held control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Eleftheriadou, Trials 2014	2	19	0	10	100.0%	2.75 [0.14, 52.33]
Total (95% CI)		**19**		**10**	**100.0%**	**2.75 [0.14, 52.33]**
Total events	2		0			

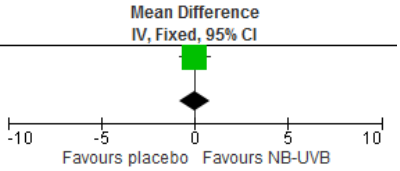
Heterogeneity: Not applicable
Test for overall effect: Z = 0.67 (P = 0.50)



Disease-specific patient self-assessment: Patient Benefit index (PBI) at 4 months

Study or Subgroup	Hand-held NB-UVB Mean	SD	Total	Hand-held control Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Eleftheriadou, Trials 2014	0.92	1.16	17	0.91	0.99	10	100.0%	0.01 [-0.81, 0.83]
Total (95% CI)			**17**			**10**	**100.0%**	**0.01 [-0.81, 0.83]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.02 (P = 0.98)



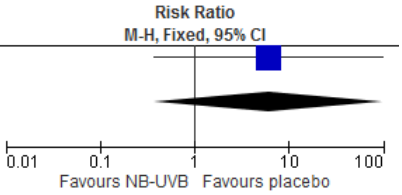
NB: Change of scale

Less important

Minor adverse effects: Grade II/III erythema during the 4 months

Study or Subgroup	Hand-held NB-UVB Events	Hand-held NB-UVB Total	Hand-held control Events	Hand-held control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Eleftheriadou, Trials 2014	5	19	0	10	100.0%	6.05 [0.37, 99.49]
Total (95% CI)		**19**		**10**	**100.0%**	**6.05 [0.37, 99.49]**
Total events	5		0			

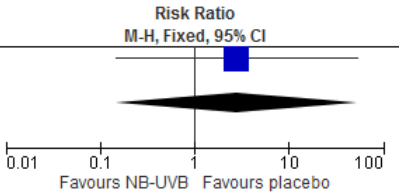
Heterogeneity: Not applicable
Test for overall effect: Z = 1.26 (P = 0.21)



Minor adverse effects: pruritus during the 4 months

Study or Subgroup	Hand-held NB-UVB Events	Hand-held NB-UVB Total	Hand-held control Events	Hand-held control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Eleftheriadou, Trials 2014	2	19	0	10	100.0%	2.75 [0.14, 52.33]
Total (95% CI)		**19**		**10**	**100.0%**	**2.75 [0.14, 52.33]**
Total events	2		0			

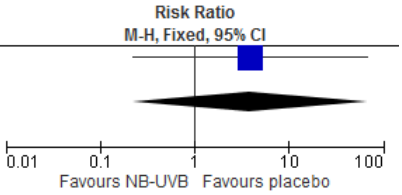
Heterogeneity: Not applicable
Test for overall effect: Z = 0.67 (P = 0.50)



Minor adverse effects: hyperpigmentation during the 4 months

Study or Subgroup	Hand-held NB-UVB Events	Hand-held NB-UVB Total	Hand-held control Events	Hand-held control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Eleftheriadou, Trials 2014	3	19	0	10	100.0%	3.85 [0.22, 67.93]
Total (95% CI)		**19**		**10**	**100.0%**	**3.85 [0.22, 67.93]**
Total events	3		0			

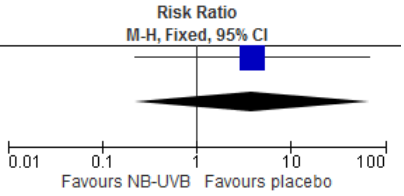
Heterogeneity: Not applicable
Test for overall effect: Z = 0.92 (P = 0.36)



Minor adverse effects: dry skin during the 4 months

Study or Subgroup	Hand-held NB-UVB Events	Total	Hand-held control Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Eleftheriadou, Trials 2014	3	19	0	10	100.0%	3.85 [0.22, 67.93]
Total (95% CI)		**19**		**10**	**100.0%**	**3.85 [0.22, 67.93]**
Total events	3		0			

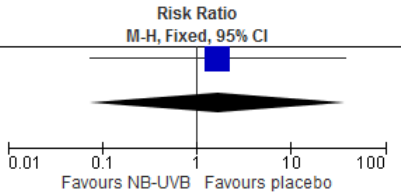
Heterogeneity: Not applicable
Test for overall effect: Z = 0.92 (P = 0.36)



Minor adverse effects: cold sores during the 4 months

Study or Subgroup	Hand-held NB-UVB Events	Total	Hand-held control Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Eleftheriadou, Trials 2014	1	19	0	10	100.0%	1.65 [0.07, 37.18]
Total (95% CI)		**19**		**10**	**100.0%**	**1.65 [0.07, 37.18]**
Total events	1		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.32 (P = 0.75)



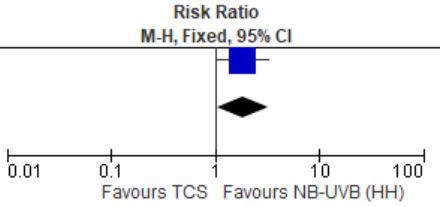
Hand-held home-based NB-UVB + placebo topical vs. topical corticosteroid (mometasone furoate 0.1%) + dummy hand-held

Critical

Disease improvement (≥50% repigmentation) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) Events	Total	TCS Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	29	169	16	173	100.0%	1.86 [1.05, 3.29]
Total (95% CI)		**169**		**173**	**100.0%**	**1.86 [1.05, 3.29]**
Total events	29		16			

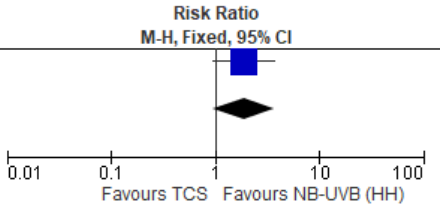
Heterogeneity: Not applicable
Test for overall effect: Z = 2.12 (P = 0.03)



Disease-specific physician assessment (VAS) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) Events	Total	TCS Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	22	169	12	173	100.0%	1.88 [0.96, 3.67]
Total (95% CI)		**169**		**173**	**100.0%**	**1.88 [0.96, 3.67]**
Total events	22		12			

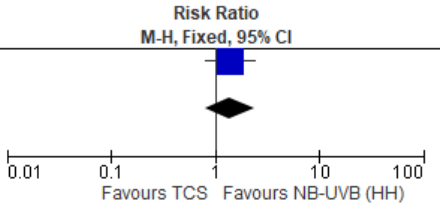
Heterogeneity: Not applicable
Test for overall effect: Z = 1.84 (P = 0.07)



Disease-specific patient self-assessment (target patch) – treatment success (a lot less noticeable or no longer noticeable) Vitiligo noticeability scale (VNS) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) Events	Total	TCS Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	27	169	20	173	100.0%	1.38 [0.81, 2.37]
Total (95% CI)		**169**		**173**	**100.0%**	**1.38 [0.81, 2.37]**
Total events	27		20			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.18 (P = 0.24)



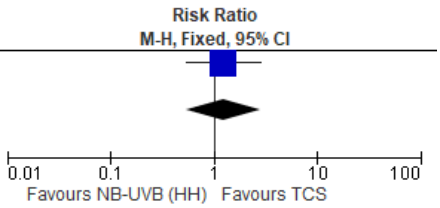
Important

Sustained clearance/ benefit (21 months follow-up): the paper did not report this but did report the opposite 'loss of response' so this has been used.

Loss of response (for those with treatment success at 9 months) at 21 months follow-up.

Study or Subgroup	NB-UVB (hand-held) Events	Total	TCS Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Batchelor, HTA 2020	10	27	6	20	100.0%	1.23 [0.54, 2.83]
Total (95% CI)		**27**		**20**	**100.0%**	**1.23 [0.54, 2.83]**
Total events	10		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.50 (P = 0.62)



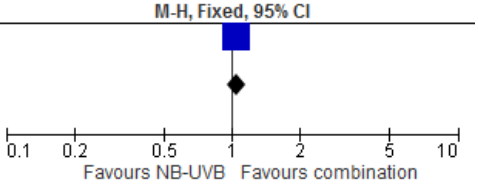
Combination NB-UVB (BioSkin®) plus betamethasone dipropionate vs NB-UVB (BioSkin®) monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Total	NB-UVB Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	27	28	92	100	100.0%	1.05 [0.96, 1.15]
Total (95% CI)		**28**		**100**	**100.0%**	**1.05 [0.96, 1.15]**
Total events	27		92			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.00 (P = 0.32)



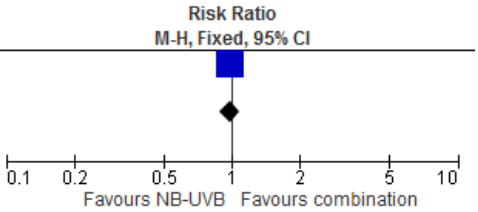
Combination NB-UVB (BioSkin®) plus calcipotriol ointment vs NB-UVB (BioSkin®) monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Total	NB-UVB Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	54	60	92	100	100.0%	0.98 [0.88, 1.08]
Total (95% CI)		**60**		**100**	**100.0%**	**0.98 [0.88, 1.08]**
Total events	54		92			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.42 (P = 0.67)



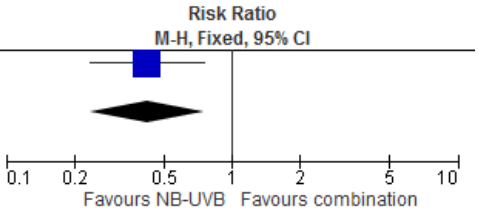
Combination NB-UVB (BioSkin®) plus L-phenylalanine cream monotherapy vs NB-UVB (BioSkin®) monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	7	18	92	100	100.0%	0.42 [0.24, 0.76]
Total (95% CI)		**18**		**100**	**100.0%**	**0.42 [0.24, 0.76]**
Total events	7		92			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.90 (P = 0.004)



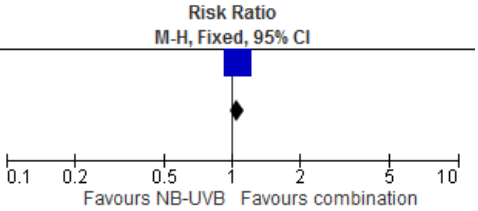
Combination NB-UVB (BioSkin®) plus pimecrolimus vs NB-UVB (BioSkin®) monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	61	63	92	100	100.0%	1.05 [0.98, 1.13]
Total (95% CI)		**63**		**100**	**100.0%**	**1.05 [0.98, 1.13]**
Total events	61		92			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.37 (P = 0.17)



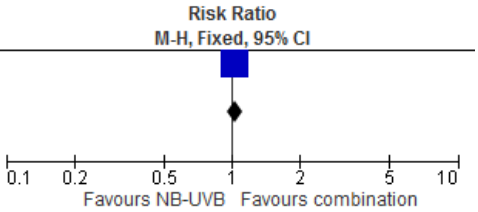
Combination NB-UVB (BioSkin®) plus tacrolimus vs NB-UVB (BioSkin®) monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	56	59	92	100	100.0%	1.03 [0.95, 1.12]
Total (95% CI)		**59**		**100**	**100.0%**	**1.03 [0.95, 1.12]**
Total events	56		92			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.74 (P = 0.46)



DRAFT

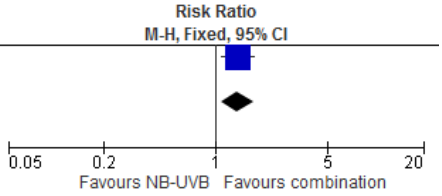
Combination NB-UVB (Bioskin®) and novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta®) vs NB-UVB monotherapy (Bioskin®) (cohort)

Critical

Disease improvement: ≥50% repigmentation in patients at 12 weeks

Study or Subgroup	NB-UVB + Re-Pigmenta ® Events	Total	NB-UVB Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Buggiani, DT 2012	32	36	35	54	100.0%	1.37 [1.09, 1.72]
Total (95% CI)		**36**		**54**	**100.0%**	**1.37 [1.09, 1.72]**
Total events	32		35			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.72 (P = 0.007)



NB: Change of scale

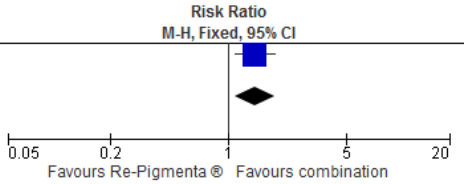
Combination NB-UVB (Bioskin®) and novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta ®) vs Re-Pigmenta ® (cohort)

Critical

Disease improvement: ≥50% repigmentation in patients at 12 weeks

Study or Subgroup	NB-UVB + Re-Pigmenta ® Events	Total	Re-Pigmenta ® Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Buggiani, DT 2012	32	36	23	37	100.0%	1.43 [1.08, 1.89]
Total (95% CI)		**36**		**37**	**100.0%**	**1.43 [1.08, 1.89]**
Total events	32		23			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.53 (P = 0.01)



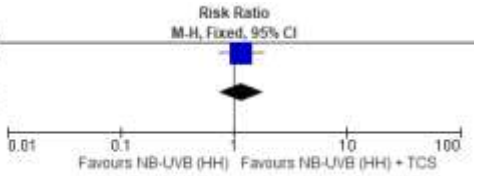
Combination hand-held home-based NB-UVB + topical corticosteroid (mometasone furoate 0.1%) vs. hand-held home-based NB-UVB + placebo topical

Critical

Disease improvement (≥50% repigmentation) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	NB-UVB (hand-held) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	35	175	29	169	100.0%	1.17 [0.75, 1.82]
Total (95% CI)		**175**		**169**	**100.0%**	**1.17 [0.75, 1.82]**
Total events	35		29			

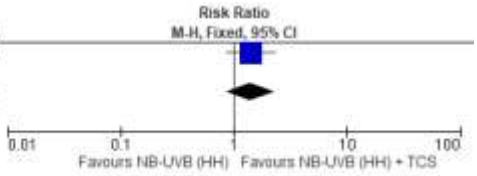
Heterogeneity: Not applicable
Test for overall effect: Z = 0.68 (P = 0.50)



Disease-specific physician assessment (VAS) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	NB-UVB (hand-held) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	32	175	22	169	100.0%	1.40 [0.85, 2.32]
Total (95% CI)		**175**		**169**	**100.0%**	**1.40 [0.85, 2.32]**
Total events	32		22			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.33 (P = 0.18)

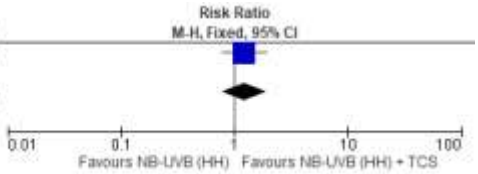


DRAFT

Disease-specific patient self-assessment (target patch) – treatment success (a lot less noticeable or no longer noticeable) (VNS) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	NB-UVB (hand-held) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	34	175	27	169	100.0%	1.22 [0.77, 1.92]
Total (95% CI)		**175**		**169**	**100.0%**	**1.22 [0.77, 1.92]**
Total events	34		27			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.84 (P = 0.40)



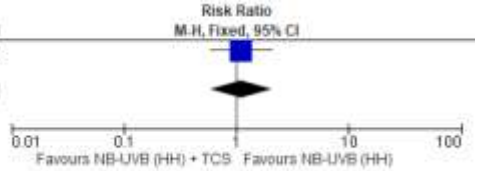
Important

Sustained clearance/ benefit (21 months follow-up): the paper did not report this but did report the opposite 'loss of response' so this has been used.

Loss of response (for those with treatment success at 9 months) at 21 months follow-up.

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	NB-UVB (hand-held) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Batchelor, HTA 2020	14	34	10	27	100.0%	1.11 [0.59, 2.10]
Total (95% CI)		**34**		**27**	**100.0%**	**1.11 [0.59, 2.10]**
Total events	14		10			

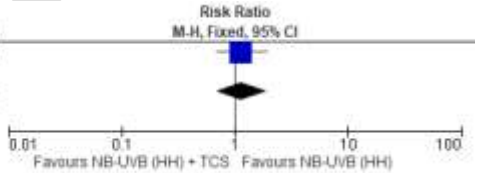
Heterogeneity: Not applicable
Test for overall effect: Z = 0.33 (P = 0.74)



Minor adverse events: erythema (grade 3 or 4) in adults any time during 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	NB-UVB (hand-held) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	28	135	22	130	100.0%	1.14 [0.68, 1.90]
Total (95% CI)		**135**		**130**	**100.0%**	**1.14 [0.68, 1.90]**
Total events	28		22			

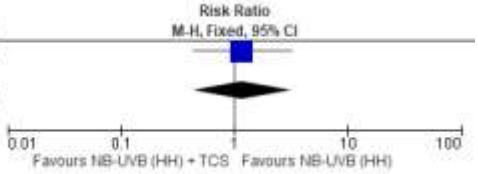
Heterogeneity: Not applicable
Test for overall effect: Z = 0.49 (P = 0.62)



STRATA: Minor adverse events: erythema (grade 3 or 4) in children any time during 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	NB-UVB (hand-held) Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	7	39	6	39	100.0%	1.17 [0.43, 3.16]
Total (95% CI)		**39**		**39**	**100.0%**	**1.17 [0.43, 3.16]**
Total events	7		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.30 (P = 0.76)



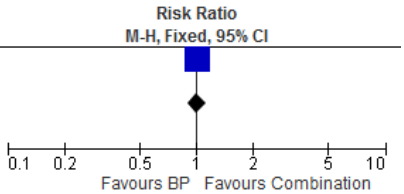
Combination NB-UVB (BioSkin®) plus betamethasone dipropionate vs betamethasone dipropionate monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Total	betamethasone dipropionate Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	27	28	22	23	100.0%	1.01 [0.90, 1.13]
Total (95% CI)		**28**		**23**	**100.0%**	**1.01 [0.90, 1.13]**
Total events	27		22			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.14 (P = 0.89)



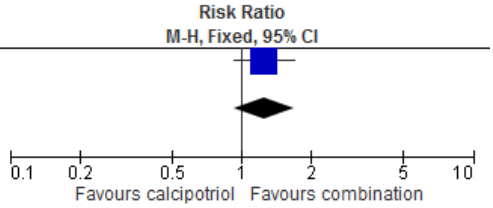
Combination NB-UVB (BioSkin®) plus calcipotriol ointment vs calcipotriol ointment monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	calcipotriol Events	calcipotriol Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	54	60	13	18	100.0%	1.25 [0.92, 1.68]
Total (95% CI)		**60**		**18**	**100.0%**	**1.25 [0.92, 1.68]**
Total events	54		13			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.44 (P = 0.15)



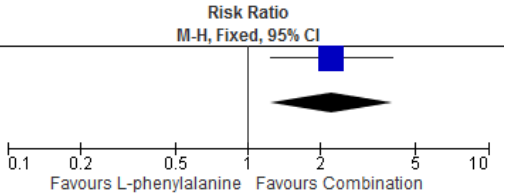
Combination NB-UVB (BioSkin®) plus L-phenylalanine cream vs L-phenylalanine cream monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	L-phenylalanine Events	L-phenylalanine Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	52	60	7	18	100.0%	2.23 [1.24, 4.01]
Total (95% CI)		**60**		**18**	**100.0%**	**2.23 [1.24, 4.01]**
Total events	52		7			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.67 (P = 0.008)



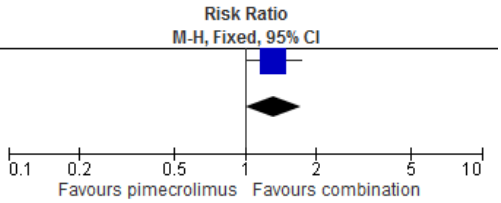
Combination NB-UVB (BioSkin®) plus pimecrolimus vs pimecrolimus monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	Pimecrolimus Events	Pimecrolimus Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	61	63	14	19	100.0%	1.31 [1.00, 1.73]
Total (95% CI)		**63**		**19**	**100.0%**	**1.31 [1.00, 1.73]**
Total events	61		14			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.97 (P = 0.05)



DRAFT

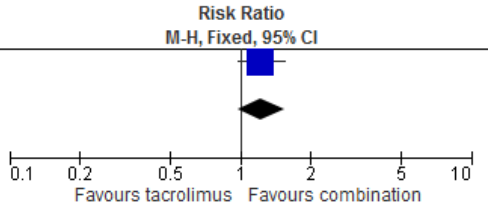
Combination NB-UVB (BioSkin®) plus tacrolimus vs tacrolimus monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation at 6 months

Study or Subgroup	Combination Events	Combination Total	Tacrolimus Events	Tacrolimus Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lotti, DT 2008	56	59	17	22	100.0%	1.23 [0.97, 1.55]
Total (95% CI)		**59**		**22**	**100.0%**	**1.23 [0.97, 1.55]**
Total events	56		17			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.72 (P = 0.09)



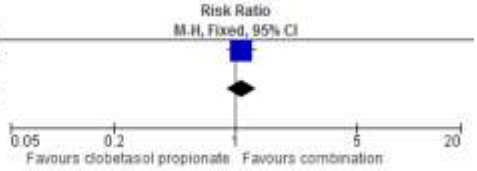
Combination NB-UVB and novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta®) vs clobetasol propionate 0.05% ointment (cohort)

Critical

Disease improvement: ≥50% repigmentation in patients at 12 weeks

Study or Subgroup	NB-UVB + Re-Pigmenta ® Events	NB-UVB + Re-Pigmenta ® Total	Clobetasol propionate Events	Clobetasol propionate Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Buggiani, DT 2012	32	36	27	33	100.0%	1.09 [0.89, 1.32]
Total (95% CI)		**36**		**33**	**100.0%**	**1.09 [0.89, 1.32]**
Total events	32		27			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.82 (P = 0.41)



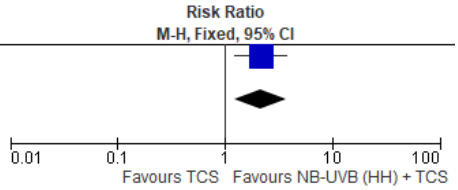
Combination hand-held home-based NB-UVB + topical corticosteroid (mometasone furoate 0.1%) vs. topical corticosteroid (mometasone furoate 0.1%) + dummy hand-held

Critical

Disease improvement (≥50% repigmentation) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	NB-UVB (hand-held) + TCS Total	TCS Events	TCS Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	35	175	16	173	100.0%	2.16 [1.24, 3.76]
Total (95% CI)		**175**		**173**	**100.0%**	**2.16 [1.24, 3.76]**
Total events	35		16			

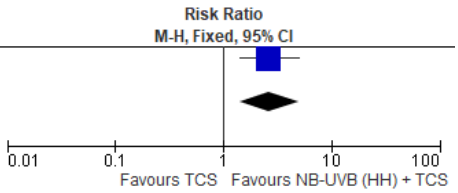
Heterogeneity: Not applicable
Test for overall effect: Z = 2.73 (P = 0.006)



Disease-specific physician assessment (VAS) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) + TCS Events	NB-UVB (hand-held) + TCS Total	TCS Events	TCS Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	32	175	12	173	100.0%	2.64 [1.41, 4.95]
Total (95% CI)		**175**		**173**	**100.0%**	**2.64 [1.41, 4.95]**
Total events	32		12			

Heterogeneity: Not applicable
Test for overall effect: Z = 3.02 (P = 0.003)

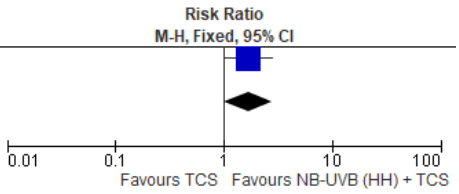


DRAFT

Disease-specific patient self-assessment (target patch) – treatment success (a lot less noticeable or no longer noticeable) (VNS) after 9 months treatment

Study or Subgroup	NB-UVB (hand-held) +TCS Events	Total	TCS Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Thomas, BJD 2020	34	175	20	173	100.0%	1.68 [1.01, 2.80]
Total (95% CI)		**175**		**173**	**100.0%**	**1.68 [1.01, 2.80]**
Total events	34		20			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.99 (P = 0.05)



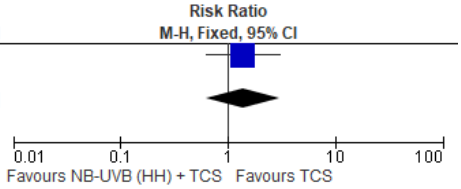
Important

Sustained clearance/ benefit (21 months follow-up): the paper did not report this but did report the opposite 'loss of response' so this has been used.

Loss of response (for those with treatment success at 9 months) at 21 months follow-up.

Study or Subgroup	NB-UVB (hand-held) + TCS Events	Total	TCS Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Batchelor, HTA 2020	14	34	6	20	100.0%	1.37 [0.63, 3.00]
Total (95% CI)		**34**		**20**	**100.0%**	**1.37 [0.63, 3.00]**
Total events	14		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.79 (P = 0.43)



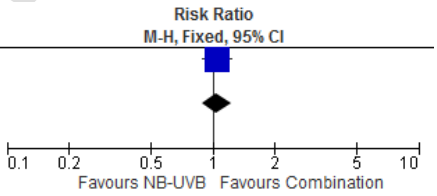
Combination NB-UVB and oral Janus kinase inhibitor (tofacitinib citrate) vs NB-UVB monotherapy (cohort)

Critical

Disease improvement: ≥50% repigmentation in patients at end of treatment (33 weeks)

Study or Subgroup	Combination Events	Total	NB-UVB Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gianfaldoni, O A Maced J Sci 2018	9	9	53	58	100.0%	1.05 [0.89, 1.23]
Total (95% CI)		**9**		**58**	**100.0%**	**1.05 [0.89, 1.23]**
Total events	9		53			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.56 (P = 0.58)

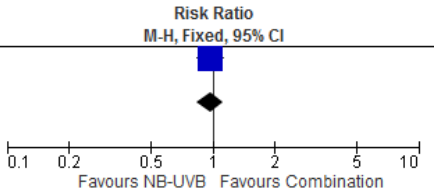


NB: Change in scale

Treatment tolerability

Study or Subgroup	Combination Events	Total	NB-UVB Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gianfaldoni, O A Maced J Sci 2018	9	9	57	58	100.0%	0.97 [0.84, 1.13]
Total (95% CI)		**9**		**58**	**100.0%**	**0.97 [0.84, 1.13]**
Total events	9		57			

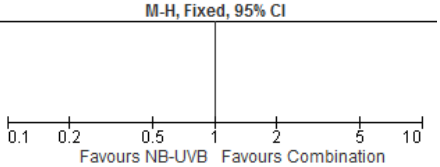
Heterogeneity: Not applicable
Test for overall effect: Z = 0.34 (P = 0.74)



Minor adverse events

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gianfaldoni, O A Maced J Sci 2018	0	9	0	58		Not estimable
Total (95% CI)		**9**		**58**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



NB: Risk ratio cannot be calculated when there are no events on either arm

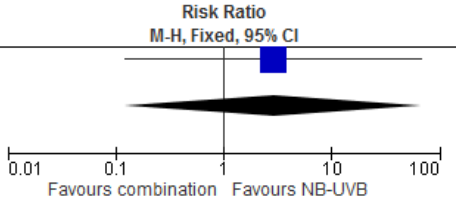
Combination NB-UVB + afamelanotide vs NB-UVB monotherapy

Critical

Serious adverse events during 6 months treatment

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lim, JAMA Dermatol 2015	1	28	0	27	100.0%	2.90 [0.12, 68.15]
Total (95% CI)		**28**		**27**	**100.0%**	**2.90 [0.12, 68.15]**
Total events	1		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.66 (P = 0.51)

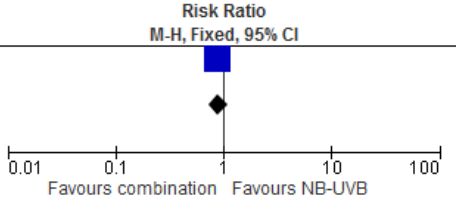


Less important

Minor adverse events: any during the 6 months treatment

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lim, JAMA Dermatol 2015	23	28	25	27	100.0%	0.89 [0.72, 1.09]
Total (95% CI)		**28**		**27**	**100.0%**	**0.89 [0.72, 1.09]**
Total events	23		25			

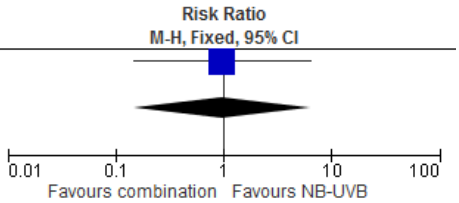
Heterogeneity: Not applicable
Test for overall effect: Z = 1.16 (P = 0.25)



Minor adverse events: Pruritus during the 6 months treatment

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lim, JAMA Dermatol 2015	2	28	2	27	100.0%	0.96 [0.15, 6.37]
Total (95% CI)		**28**		**27**	**100.0%**	**0.96 [0.15, 6.37]**
Total events	2		2			

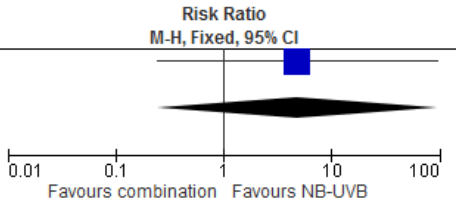
Heterogeneity: Not applicable
Test for overall effect: Z = 0.04 (P = 0.97)



Minor adverse events: Hyperpigmentation during the 6 months treatment

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Lim, JAMA Dermatol 2015	2	28	0	27	100.0%	4.83 [0.24, 96.16]
Total (95% CI)		**28**		**27**	**100.0%**	**4.83 [0.24, 96.16]**
Total events	2		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.03 (P = 0.30)



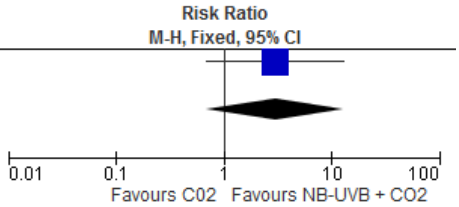
Combination NB-UVB + fractional carbon dioxide (CO_2) laser vs fractional CO_2 laser monotherapy

Critical

Disease improvement: >50% repigmentation in patients, 3-months follow-up

Study or Subgroup	NB-UVB + CO2 Events	NB-UVB + CO2 Total	CO2 Events	CO2 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Abdelghani, JCD 2018	6	20	2	20	100.0%	3.00 [0.69, 13.12]
Total (95% CI)		**20**		**20**	**100.0%**	**3.00 [0.69, 13.12]**
Total events	6		2			

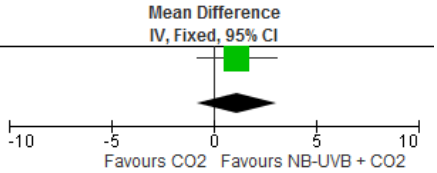
Heterogeneity: Not applicable
Test for overall effect: Z = 1.46 (P = 0.14)



Disease-specific patient self-assessment: Patient satisfaction visual analog scale (VAS) 3-months follow-up

Study or Subgroup	NB-UVB + CO2 Mean	NB-UVB + CO2 SD	NB-UVB + CO2 Total	CO2 Mean	CO2 SD	CO2 Total	Weight	Mean Difference IV, Fixed, 95% CI
Abdelghani, JCD 2018	5.65	3.422	20	4.5	2.763	20	100.0%	1.15 [-0.78, 3.08]
Total (95% CI)			**20**			**20**	**100.0%**	**1.15 [-0.78, 3.08]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.17 (P = 0.24)



NB: Change of scale

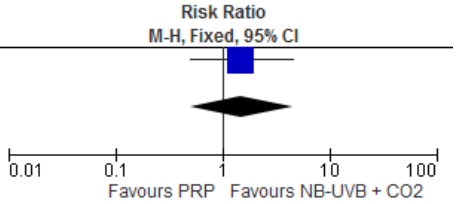
Combination NB-UVB + fractional carbon dioxide (CO_2) laser vs PRP injection monotherapy

Critical

Disease improvement: >50% repigmentation in patients, 3-months follow-up

Study or Subgroup	NB-UVB + CO2 Events	NB-UVB + CO2 Total	PRP injection Events	PRP injection Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Abdelghani, JCD 2018	6	20	4	20	100.0%	1.50 [0.50, 4.52]
Total (95% CI)		**20**		**20**	**100.0%**	**1.50 [0.50, 4.52]**
Total events	6		4			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.72 (P = 0.47)

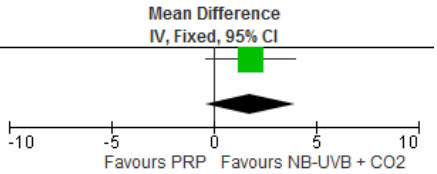


NB: Change of scale

Disease-specific patient self-assessment: Patient satisfaction VAS 3-months follow-up

Study or Subgroup	NB-UVB + CO2 Mean	NB-UVB + CO2 SD	NB-UVB + CO2 Total	PRP injection Mean	PRP injection SD	PRP injection Total	Weight	Mean Difference IV, Fixed, 95% CI
Abdelghani, JCD 2018	5.65	3.422	20	3.85	3.675	20	100.0%	1.80 [-0.40, 4.00]
Total (95% CI)			**20**			**20**	**100.0%**	**1.80 [-0.40, 4.00]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.60 (P = 0.11)



NB: Change of scale

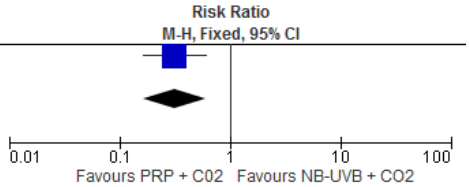
Combination NB-UVB + fractional carbon dioxide (CO_2) laser vs combination platelet-rich plasma (PRP) injection + fractional CO_2 laser

Critical

Disease improvement: >50% repigmentation in patients, 3-months follow-up

Study or Subgroup	NB-UVB + CO2 Events	NB-UVB + CO2 Total	PRP injection + CO2 Events	PRP injection + CO2 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Abdelghani, JCD 2018	6	20	20	20	100.0%	0.32 [0.17, 0.60]
Total (95% CI)		**20**		**20**	**100.0%**	**0.32 [0.17, 0.60]**
Total events	6		20			

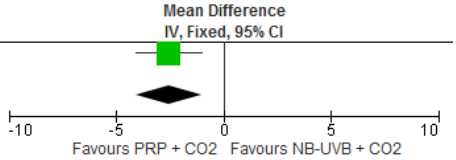
Heterogeneity: Not applicable
Test for overall effect: Z = 3.51 (P = 0.0005)



Disease-specific patient self-assessment: Patient satisfaction VAS 3-months follow-up

Study or Subgroup	NB-UVB + CO2 Mean	SD	Total	PRP injection + CO2 Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Abdelghani, JCD 2018	5.65	3.422	20	8.2	0.616	20	100.0%	-2.55 [-4.07, -1.03]
Total (95% CI)			**20**			**20**	**100.0%**	**-2.55 [-4.07, -1.03]**

Heterogeneity: Not applicable
Test for overall effect: Z = 3.28 (P = 0.001)



NB: Change of scale

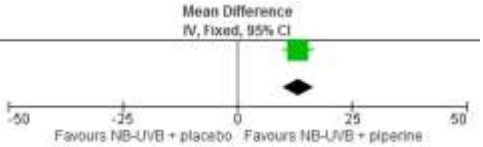
Combination NB-UVB +piperine (herbal extract derived from black pepper) vs NB-UVB + placebo

Critical

Disease-specific physician assessment: Doctor's average scores for repigmentation (1 month)

Study or Subgroup	NB-UVB + piperine Mean	SD	Total	NB-UVB + placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Shaflee, Phytother Res 2018	20.3	7.1	35	7	6.6	28	100.0%	13.30 [9.91, 16.69]
Total (95% CI)			**35**			**28**	**100.0%**	**13.30 [9.91, 16.69]**

Heterogeneity: Not applicable
Test for overall effect: Z = 7.68 (P < 0.00001)



NB: Change of scale

Disease-specific physician assessment: Doctor's average scores for repigmentation (2 months)

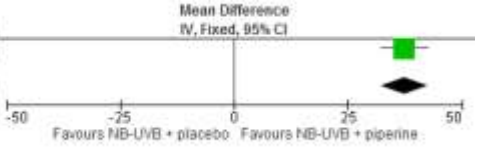
Study or Subgroup	NB-UVB + piperine Mean	SD	Total	NB-UVB + placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Shaflee, Phytother Res 2018	36.9	11	35	12	7	28	100.0%	24.90 [20.43, 29.37]
Total (95% CI)			**35**			**28**	**100.0%**	**24.90 [20.43, 29.37]**

Heterogeneity: Not applicable
Test for overall effect: Z = 10.91 (P < 0.00001)

Disease-specific physician assessment: Doctor's average scores for repigmentation (3 months)

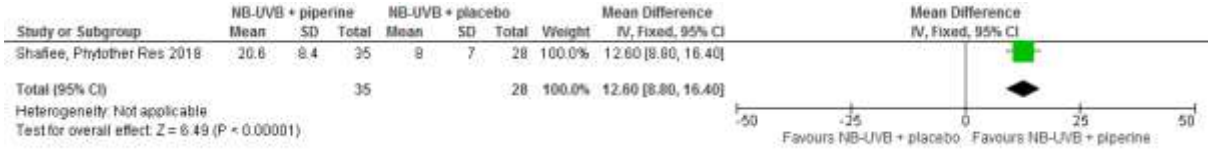
Study or Subgroup	NB-UVB + piperine Mean	SD	Total	NB-UVB + placebo Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Shaflee, Phytother Res 2018	53.6	13.4	35	16.3	7.2	28	100.0%	37.30 [32.12, 42.48]
Total (95% CI)			**35**			**28**	**100.0%**	**37.30 [32.12, 42.48]**

Heterogeneity: Not applicable
Test for overall effect: Z = 14.12 (P < 0.00001)



DRAFT

Disease-specific patient self-assessment: repigmentation (1 month)

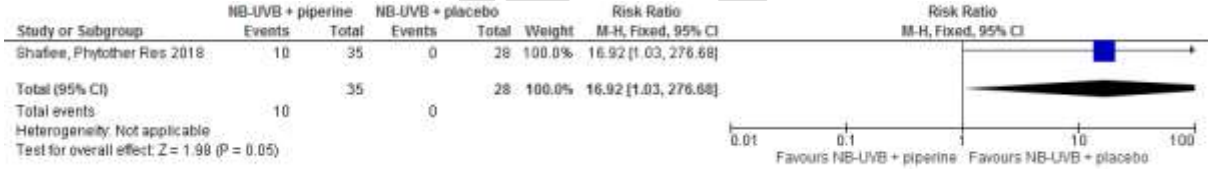


Disease-specific patient self-assessment: repigmentation (2 months)

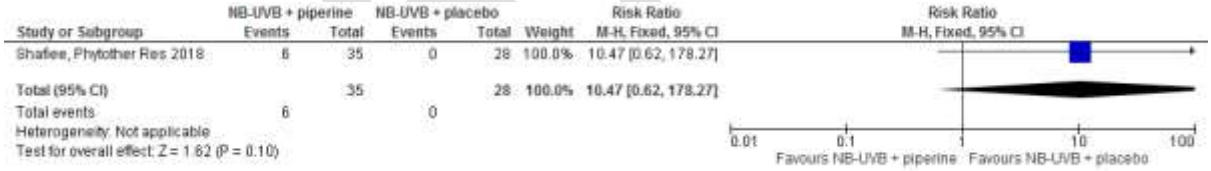
Disease-specific patient self-assessment: repigmentation (3 months)

Less important

Minor adverse events: burning



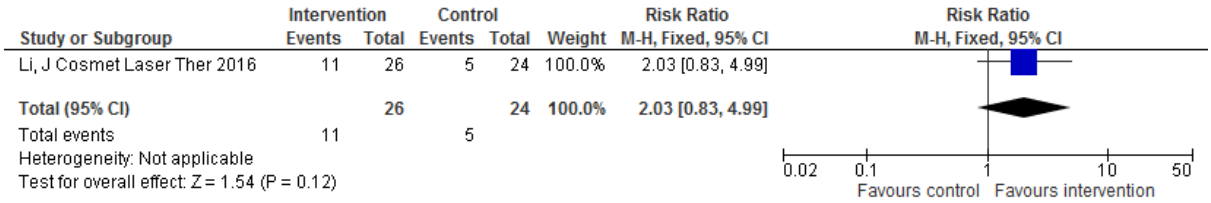
Minor adverse events: redness



Combination NB-UVB + betamethasone injection + ALA (intervention) vs combination NB-UVB + betamethasone injection + placebo (control)

Critical

Disease improvement: >50% repigmentation (3 months)

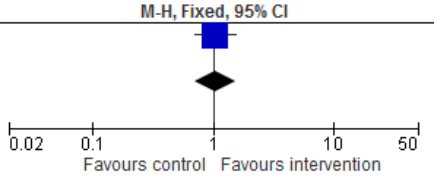


NB: Change of scale

Disease improvement: >50% repigmentation (6 months)

Study or Subgroup	Intervention Events	Intervention Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Li, J Cosmet Laser Ther 2016	18	26	16	24	100.0%	1.04 [0.71, 1.52]
Total (95% CI)		**26**		**24**	**100.0%**	**1.04 [0.71, 1.52]**
Total events	18		16			

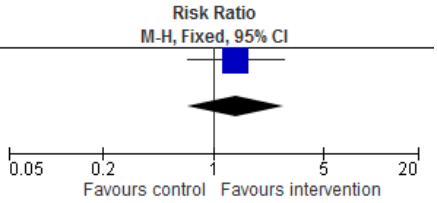
Heterogeneity: Not applicable
Test for overall effect: Z = 0.19 (P = 0.85)



Disease-specific patient self-assessment: VAS ≥5 (3 months)

Study or Subgroup	Intervention Events	Intervention Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Li, J Cosmet Laser Ther 2016	12	26	8	24	100.0%	1.38 [0.69, 2.79]
Total (95% CI)		**26**		**24**	**100.0%**	**1.38 [0.69, 2.79]**
Total events	12		8			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.91 (P = 0.36)

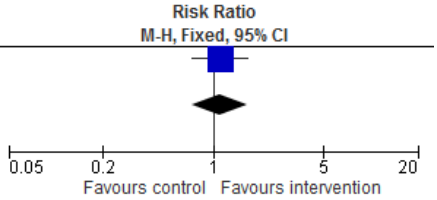


NB: Change of scale

Disease-specific patient self-assessment: VAS ≥5 (6 months)

Study or Subgroup	Intervention Events	Intervention Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Li, J Cosmet Laser Ther 2016	18	26	15	24	100.0%	1.11 [0.74, 1.66]
Total (95% CI)		**26**		**24**	**100.0%**	**1.11 [0.74, 1.66]**
Total events	18		15			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.50 (P = 0.62)



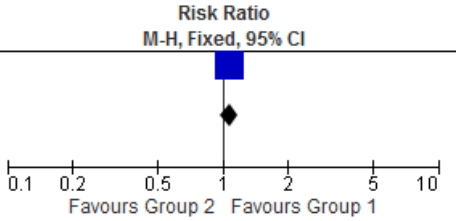
NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after (Group 1) vs NB-UVB before + cultured autologous melanocyte transplantation (Group 2)

Critical

Disease improvement: ≥50% repigmentation (6 months)

Study or Subgroup	Group 1 Events	Group 1 Total	Group 2 Events	Group 2 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhang, DS 2014	110	120	100	117	100.0%	1.07 [0.98, 1.18]
Total (95% CI)		**120**		**117**	**100.0%**	**1.07 [0.98, 1.18]**
Total events	110		100			

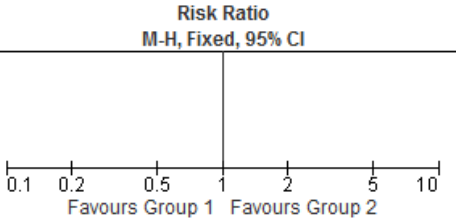
Heterogeneity: Not applicable
Test for overall effect: Z = 1.49 (P = 0.14)



Serious adverse events

Study or Subgroup	Group 1 Events	Group 1 Total	Group 2 Events	Group 2 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhang, DS 2014	0	120	0	117		Not estimable
Total (95% CI)		**120**		**117**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



NB: Risk ratio cannot be calculated when there are no events on either arm

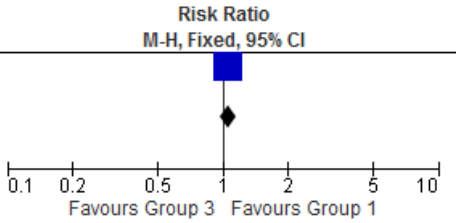
NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after (Group 1) vs cultured autologous melanocyte transplantation + NB-UVB after (Group 3)

Critical

Disease improvement: ≥50% repigmentation (6 months)

Study or Subgroup	Group 1 Events	Group 1 Total	Group 3 Events	Group 3 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhang, DS 2014	110	120	101	117	100.0%	1.06 [0.97, 1.16]
Total (95% CI)		**120**		**117**	**100.0%**	**1.06 [0.97, 1.16]**
Total events	110		101			

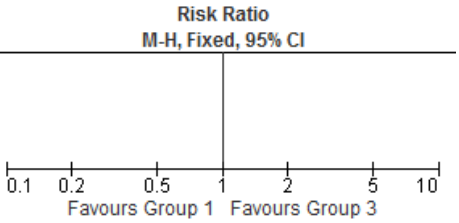
Heterogeneity: Not applicable
Test for overall effect: Z = 1.31 (P = 0.19)



Serious adverse events

Study or Subgroup	Group 1 Events	Group 1 Total	Group 3 Events	Group 3 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhang, DS 2014	0	120	0	117		Not estimable
Total (95% CI)		**120**		**117**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



NB: Risk ratio cannot be calculated when there are no events on either arm

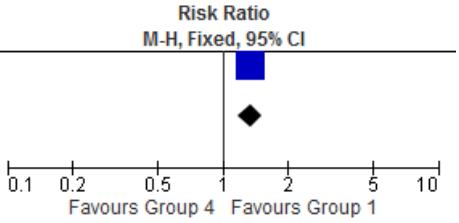
NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after (Group 1) vs cultured autologous melanocyte transplantation (Group 4)

Critical

Disease improvement: ≥50% repigmentation (6 months)

Study or Subgroup	Group 1 Events	Group 1 Total	Group 4 Events	Group 4 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhang, DS 2014	110	120	80	117	100.0%	1.34 [1.17, 1.53]
Total (95% CI)		**120**		**117**	**100.0%**	**1.34 [1.17, 1.53]**
Total events	110		80			

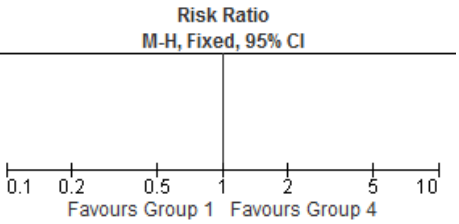
Heterogeneity: Not applicable
Test for overall effect: Z = 4.27 (P < 0.0001)



Serious adverse events

Study or Subgroup	Group 1 Events	Group 1 Total	Group 4 Events	Group 4 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Zhang, DS 2014	0	120	0	117		Not estimable
Total (95% CI)		**120**		**117**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



B.3 Eczema/atopic dermatitis

NB-UVB vs control (unexposed) (cohort)

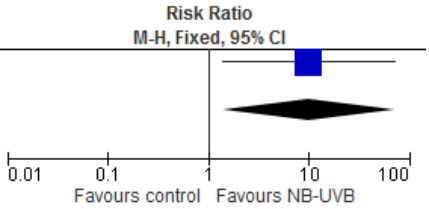
STRATA: Children (0-12 years) and young people (12-17 years)

Critical

Disease improvement: SASSAD ≤10 at 12 weeks

Study or Subgroup	NB-UVB Events	NB-UVB Total	Control (unexposed) Events	Control (unexposed) Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Darne, BJD 2014	12	31	1	26	100.0%	10.06 [1.40, 72.33]
Total (95% CI)		**31**		**26**	**100.0%**	**10.06 [1.40, 72.33]**
Total events	12		1			

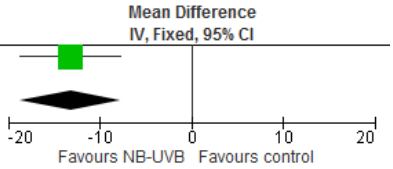
Heterogeneity: Not applicable
Test for overall effect: Z = 2.29 (P = 0.02)



Disease-specific physician assessment: mean change in SASSAD score at 12 weeks

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	Control (unexposed) Mean	Control (unexposed) SD	Control (unexposed) Total	Weight	Mean Difference IV, Fixed, 95% CI
Darne, BJD 2014	11.6	10.5522	31	24.8	10.5522	26	100.0%	-13.20 [-18.70, -7.70]
Total (95% CI)			**31**			**26**	**100.0%**	**-13.20 [-18.70, -7.70]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.70 (P < 0.00001)

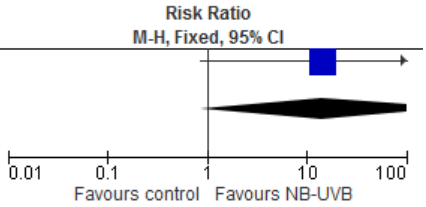


Important

Sustained clearance/benefit: 6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	Control (unexposed) Events	Control (unexposed) Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Darne, BJD 2014	8	31	0	26	100.0%	14.34 [0.87, 237.25]
Total (95% CI)		**31**		**26**	**100.0%**	**14.34 [0.87, 237.25]**
Total events	8		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.86 (P = 0.06)



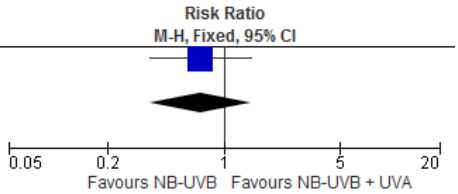
Combination NB-UVB plus UVA vs NB-UVB monotherapy (open randomised observational study)

Critical

Disease improvement: clearance rate >75% of the initial affected TBSA

Study or Subgroup	NB-UVB + UVA Events	NB-UVB + UVA Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Fernández-Guarino, DT 2016	5	10	11	16	100.0%	0.73 [0.36, 1.47]
Total (95% CI)		**10**		**16**	**100.0%**	**0.73 [0.36, 1.47]**
Total events	5		11			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.89 (P = 0.37)



NB: Change of scale

B.4 Hand and foot (palmoplantar) dermatoses

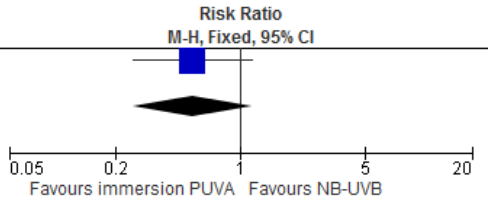
NB-UVB vs immersion PUVA

Critical

Disease improvement: PGA response (0 or 1) at 12 weeks: palmar hand eczema

Study or Subgroup	NB-UVB Events	NB-UVB Total	Immersion PUVA Events	Immersion PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brass, BJD 2018	7	30	13	30	100.0%	0.54 [0.25, 1.16]
Total (95% CI)		**30**		**30**	**100.0%**	**0.54 [0.25, 1.16]**
Total events	7		13			

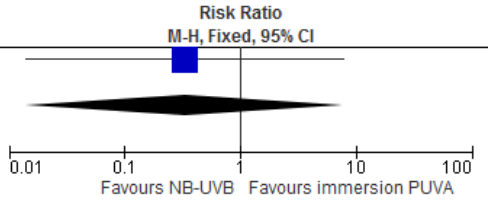
Heterogeneity: Not applicable
Test for overall effect: Z = 1.58 (P = 0.11)



Serious adverse events

Study or Subgroup	NB-UVB Events	NB-UVB Total	Immersion PUVA Events	Immersion PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brass, BJD 2018	0	30	1	30	100.0%	0.33 [0.01, 7.87]
Total (95% CI)		**30**		**30**	**100.0%**	**0.33 [0.01, 7.87]**
Total events	0		1			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.68 (P = 0.50)



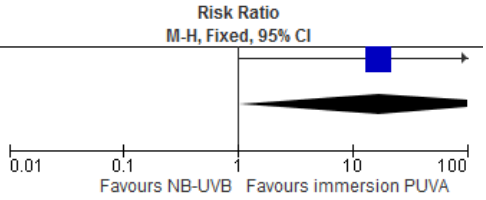
NB: Change of scale

Less important

Minor adverse events (moderate; treatment related)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Immersion PUVA Events	Immersion PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brass, BJD 2018	8	30	0	30	100.0%	17.00 [1.03, 281.91]
Total (95% CI)		**30**		**30**	**100.0%**	**17.00 [1.03, 281.91]**
Total events	8		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.98 (P = 0.05)



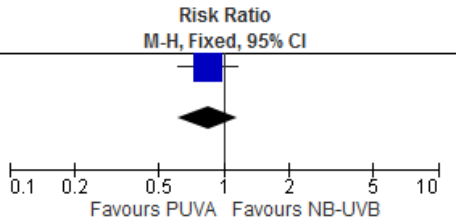
NB-UVB vs PUVA (cohort)

Critical

Disease improvement: improvement or clear skin after a flare (at end of treatment) in people with palmoplantar psoriasis.

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Redon, ADV 2010	29	56	38	62	100.0%	0.84 [0.61, 1.16]
Total (95% CI)		**56**		**62**	**100.0%**	**0.84 [0.61, 1.16]**
Total events	29		38			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.03 (P = 0.30)



NB: Total is number of flares, rather than number of patients which is 43 vs 49. Change of scale.

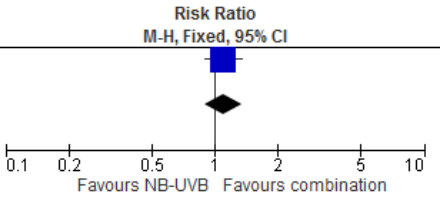
Combination NB-UVB plus methotrexate (group 1) vs NB-UVB monotherapy (group 2) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (erythema, scaling, induration and fissuring) (same results for both palmar and plantar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	11	12	100.0%	1.10 [0.89, 1.36]
Total (95% CI)		**17**		**12**	**100.0%**	**1.10 [0.89, 1.36]**
Total events	17		11			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.88 (P = 0.38)



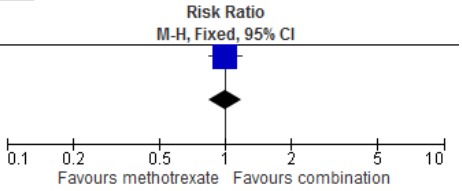
Combination NB-UVB plus methotrexate (group 1) vs methotrexate monotherapy (group 2) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (same results for both palmar and plantar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination Events	Combination Total	Methotrexate Events	Methotrexate Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	8	8	100.0%	1.00 [0.84, 1.19]
Total (95% CI)		**17**		**8**	**100.0%**	**1.00 [0.84, 1.19]**
Total events	17		8			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)



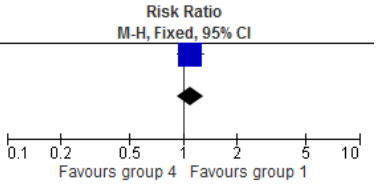
Combination NB-UVB plus methotrexate (group 1) vs combination halobetasol propionate ointment plus methotrexate (group 4) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (same results for both palmar and plantar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 4 Events	Combination group 4 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	18	20	100.0%	1.10 [0.93, 1.32]
Total (95% CI)		**17**		**20**	**100.0%**	**1.10 [0.93, 1.32]**
Total events	17		18			

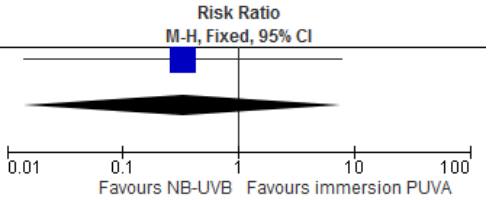
Heterogeneity: Not applicable
Test for overall effect: Z = 1.10 (P = 0.27)



Serious adverse events

Study or Subgroup	NB-UVB Events	NB-UVB Total	Immersion PUVA Events	Immersion PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brass, BJD 2018	0	30	1	30	100.0%	0.33 [0.01, 7.87]
Total (95% CI)		**30**		**30**	**100.0%**	**0.33 [0.01, 7.87]**
Total events	0		1			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.68 (P = 0.50)



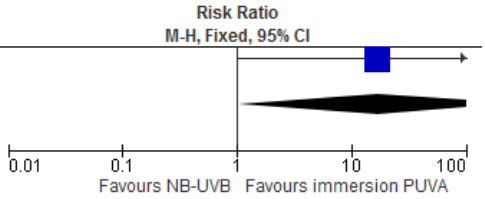
NB: Change of scale

Less important

Minor adverse events (moderate; treatment related)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Immersion PUVA Events	Immersion PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brass, BJD 2018	8	30	0	30	100.0%	17.00 [1.03, 281.91]
Total (95% CI)		**30**		**30**	**100.0%**	**17.00 [1.03, 281.91]**
Total events	8		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.98 (P = 0.05)



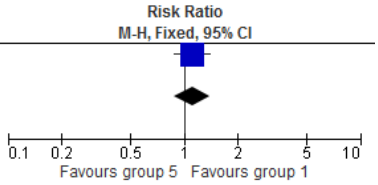
Combination NB-UVB plus methotrexate (group 1) vs combination salicylic acid 6% ointment plus methotrexate (group 5) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (palmar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 5 Events	Combination group 5 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	10	11	100.0%	1.11 [0.88, 1.40]
Total (95% CI)		**17**		**11**	**100.0%**	**1.11 [0.88, 1.40]**
Total events	17		10			

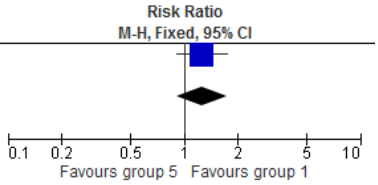
Heterogeneity: Not applicable
Test for overall effect: Z = 0.91 (P = 0.36)



Disease-specific physician assessment: >50% improvement in ESIF (plantar lesions)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 5 Events	Combination group 5 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	8	10	100.0%	1.26 [0.90, 1.75]
Total (95% CI)		**17**		**10**	**100.0%**	**1.26 [0.90, 1.75]**
Total events	17		8			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.36 (P = 0.17)



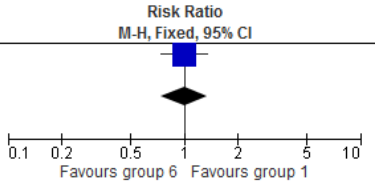
Combination NB-UVB plus methotrexate (group 1) vs combination topical tacrolimus 0.1% ointment plus methotrexate (group 6) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (palmar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 6 Events	Combination group 6 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	4	4	100.0%	1.00 [0.74, 1.35]
Total (95% CI)		**17**		**4**	**100.0%**	**1.00 [0.74, 1.35]**
Total events	17		4			

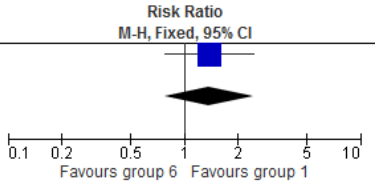
Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)



Disease-specific physician assessment: >50% improvement in ESIF (plantar lesions)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 6 Events	Combination group 6 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	3	4	100.0%	1.39 [0.78, 2.48]
Total (95% CI)		**17**		**4**	**100.0%**	**1.39 [0.78, 2.48]**
Total events	17		3			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.11 (P = 0.27)



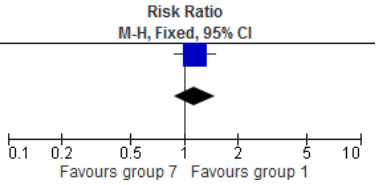
Combination NB-UVB plus methotrexate (group 1) vs combination topical tazarotene 0.1% ointment plus methotrexate (group 7) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (same results for both palmar and plantar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 7 Events	Combination group 7 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	8	9	100.0%	1.14 [0.87, 1.50]
Total (95% CI)		**17**		**9**	**100.0%**	**1.14 [0.87, 1.50]**
Total events	17		8			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.97 (P = 0.33)



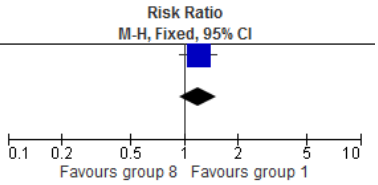
Combination NB-UVB plus methotrexate (group 1) vs combination crude coal tar ointment plus methotrexate (group 8) (cohort)

Critical

Disease-specific physician assessment: >50% improvement in ESIF (same results for both palmar and plantar lesions in people with palmoplantar psoriasis)

Study or Subgroup	Combination group 1 Events	Combination group 1 Total	Combination group 8 Events	Combination group 8 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gupta, Indian J Dermatol 2011	17	17	14	17	100.0%	1.21 [0.95, 1.53]
Total (95% CI)		**17**		**17**	**100.0%**	**1.21 [0.95, 1.53]**
Total events	17		14			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.54 (P = 0.12)



B.5 Lichen planus

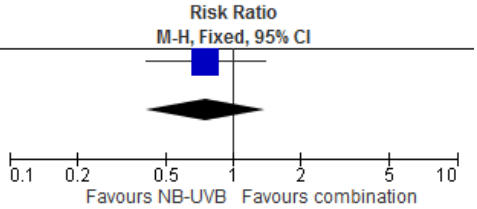
Combination NB-UVB plus topical steroids vs NB-UVB monotherapy (cohort)

Critical

Disease improvement: complete response (complete disappearance of lesions and pruritus)

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Pavlotsky, PPP 2008	5	9	25	34	100.0%	0.76 [0.41, 1.40]
Total (95% CI)		**9**		**34**	**100.0%**	**0.76 [0.41, 1.40]**
Total events	5		25			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.89 (P = 0.37)



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B.6 Graft vs host disease

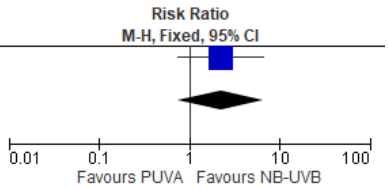
NB-UVB vs PUVA (cohort)

Critical

Disease improvement: complete

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Ballester-Sanchez, Actas Dermosifilogr 2015	4	6	3	10	100.0%	2.22 [0.74, 6.70]
Total (95% CI)		**6**		**10**	**100.0%**	**2.22 [0.74, 6.70]**
Total events	4		3			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.42 (P = 0.16)

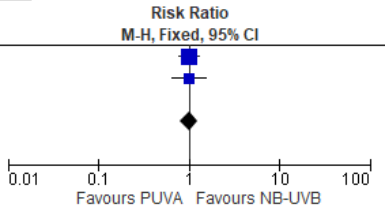


NB: Included as ≥50% control didn't indicate any difference between the two interventions.

Disease improvement: ≥50% control

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Ballester-Sanchez, Actas Dermosifilogr 2015	6	6	10	10	63.3%	1.00 [0.78, 1.27]
Duarte, An Bras Dermatol 2008	3	3	6	6	36.7%	1.00 [0.65, 1.53]
Total (95% CI)		**9**		**16**	**100.0%**	**1.00 [0.80, 1.24]**
Total events	9		16			

Heterogeneity: Chi² = 0.00, df = 1 (P = 1.00); I² = 0%
Test for overall effect: Z = 0.00 (P = 1.00)



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B.7 Progressive macular hypomelanosis

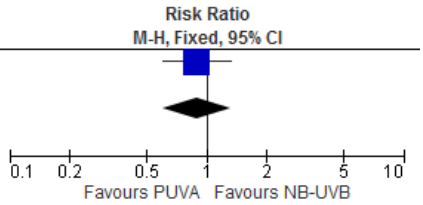
NB-UVB vs PUVA (cohort)

Critical

Disease improvement: ≥50% control

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Duarte, An Bras Dermatol 2010	30	57	16	27	100.0%	0.89 [0.60, 1.32]
Total (95% CI)		**57**		**27**	**100.0%**	**0.89 [0.60, 1.32]**
Total events	30		16			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.58 (P = 0.56)



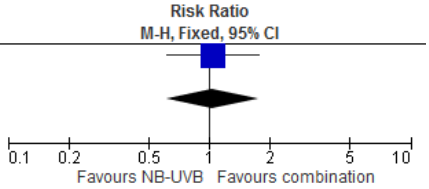
Combination NB-UVB plus daily topical clindamycin 1% and benzoyl peroxide 5% vs NB-UVB monotherapy (cohort)

Critical

Disease improvement: complete or nearly complete repigmentation (week 14)

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Selim, Dermatol Pract Concept 2011	10	15	9	14	100.0%	1.04 [0.61, 1.76]
Total (95% CI)		**15**		**14**	**100.0%**	**1.04 [0.61, 1.76]**
Total events	10		9			

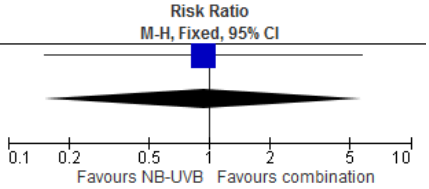
Heterogeneity: Not applicable
Test for overall effect: Z = 0.13 (P = 0.89)



Sustained clearance/benefit: at week 38 (24 weeks follow-up)

Study or Subgroup	Combination Events	Combination Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Selim, Dermatol Pract Concept 2011	2	15	2	14	100.0%	0.93 [0.15, 5.76]
Total (95% CI)		**15**		**14**	**100.0%**	**0.93 [0.15, 5.76]**
Total events	2		2			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.07 (P = 0.94)



B.8 Mastocytosis

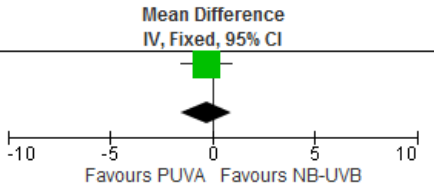
NB-UVB vs PUVA (cohort)

Critical

Disease-specific physician assessment: Mean change in VAS

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	PUVA Mean	PUVA SD	PUVA Total	Weight	Mean Difference IV, Fixed, 95% CI
Brazzelli, PPP 2016	5.8	1.8	10	6.1	1	10	100.0%	-0.30 [-1.58, 0.98]
Total (95% CI)			**10**			**10**	**100.0%**	**-0.30 [-1.58, 0.98]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.46 (P = 0.64)



DRAFT

B.9 Mycosis fungoides/CTCL

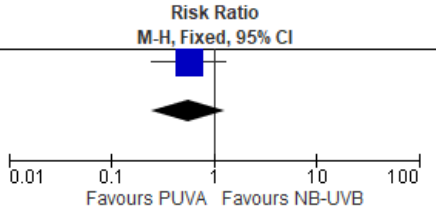
NB-UVB vs PUVA (cohort)

Critical

Disease improvement: complete disappearance of clinical lesions for a least 1 month

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Wongpraparut, PPP 2012	3	6	3	3	100.0%	0.57 [0.25, 1.31]
Total (95% CI)		**6**		**3**	**100.0%**	**0.57 [0.25, 1.31]**
Total events	3		3			

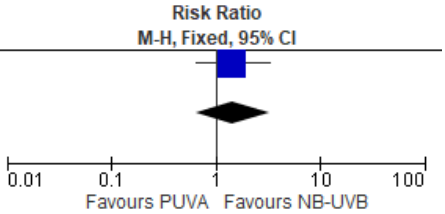
Heterogeneity: Not applicable
Test for overall effect: Z = 1.32 (P = 0.19)



Disease improvement: 90% clearance of lesions

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Khaled, Therapie 2009	4	4	2	3	100.0%	1.44 [0.64, 3.25]
Total (95% CI)		**4**		**3**	**100.0%**	**1.44 [0.64, 3.25]**
Total events	4		2			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.88 (P = 0.38)

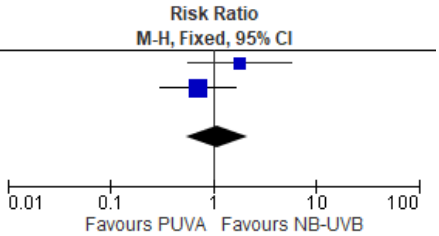


Important

Sustained clearance/ benefit: ≥6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Khaled, Therapie 2009	4	4	1	2	34.9%	1.80 [0.56, 5.79]
Wongpraparut, PPP 2012	2	3	3	3	65.1%	0.71 [0.31, 1.66]
Total (95% CI)		**7**		**5**	**100.0%**	**1.09 [0.55, 2.17]**
Total events	6		4			

Heterogeneity: Chi² = 1.67, df = 1 (P = 0.20); I² = 40%
Test for overall effect: Z = 0.25 (P = 0.80)



B.10 Pityriasis lichenoides

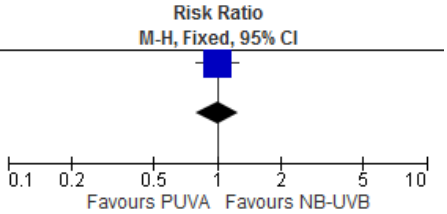
NB-UVB vs PUVA

Critical

Disease improvement: ≥50% resolution in skin lesions

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Farnaghi, JEADV 2011	8	8	7	7	100.0%	1.00 [0.79, 1.27]
Total (95% CI)		**8**		**7**	**100.0%**	**1.00 [0.79, 1.27]**
Total events	8		7			

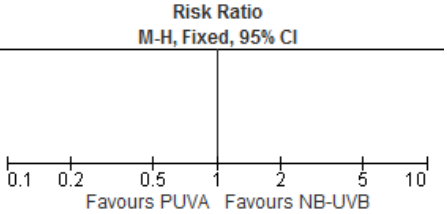
Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)



Serious adverse events

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Farnaghi, JEADV 2011	0	8	0	7		Not estimable
Total (95% CI)		**8**		**7**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



NB: Risk ratio cannot be calculated when there are no events on either arm

DRAFT

B.11 Subacute prurigo

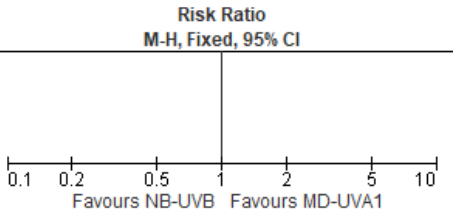
NB-UVB vs medium-dose (MD) UVA1

Critical

Serious adverse events

Study or Subgroup	NB-UVB Events	NB-UVB Total	MD-UVA1 Events	MD-UVA1 Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gambichler, CED 2006	0	13	0	11		Not estimable
Total (95% CI)		**13**		**11**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable

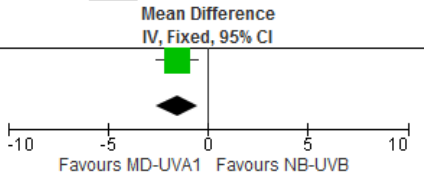


NB: Risk ratio cannot be calculated when there are no events on either arm

Disease-specific physician assessment: mean change in PIP (papules, infiltration and pruritus) score at 4 weeks (ITT)

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	MD-UVA1 Mean	MD-UVA1 SD	MD-UVA1 Total	Weight	Mean Difference IV, Fixed, 95% CI
Gambichler, CED 2006	2.08	1.38	13	3.63	1.29	11	100.0%	-1.55 [-2.62, -0.48]
Total (95% CI)			**13**			**11**	**100.0%**	**-1.55 [-2.62, -0.48]**

Heterogeneity: Not applicable
Test for overall effect: Z = 2.84 (P = 0.005)



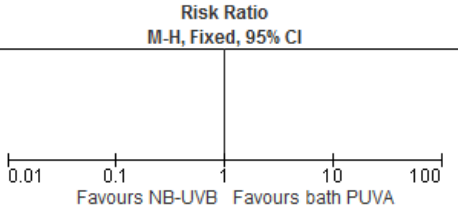
NB-UVB vs bath PUVA

Critical

Serious adverse events

Study or Subgroup	NB-UVB Events	NB-UVB Total	bath PUVA Events	bath PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Gambichler, CED 2006	0	13	0	11		Not estimable
Total (95% CI)		**13**		**11**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable

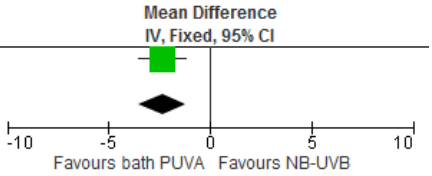


NB: Risk ratio cannot be calculated when there are no events on either arm

Disease-specific physician assessment: mean change in PIP score at 4 weeks (ITT)

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	bath PUVA Mean	bath PUVA SD	bath PUVA Total	Weight	Mean Difference IV, Fixed, 95% CI
Gambichler, CED 2006	2.08	1.38	13	4.44	1.42	9	100.0%	-2.36 [-3.55, -1.17]
Total (95% CI)			**13**			**9**	**100.0%**	**-2.36 [-3.55, -1.17]**

Heterogeneity: Not applicable
Test for overall effect: Z = 3.88 (P = 0.0001)



NB: Change of scale

DRAFT

B.12 Pruritus

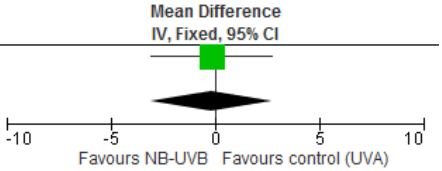
NB-UVB vs control (UVA)

Critical

Disease-specific physician assessment: Decrease in VAS scores of pruritus intensity at end of treatment (6 weeks)

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	Control (UVA) Mean	Control (UVA) SD	Control (UVA) Total	Weight	Mean Difference IV, Fixed, 95% CI
Ko, BJD 2011	-3.53	3.7213	11	-3.38	3.0335	10	100.0%	-0.15 [-3.04, 2.74]
Total (95% CI)			**11**			**10**	**100.0%**	**-0.15 [-3.04, 2.74]**

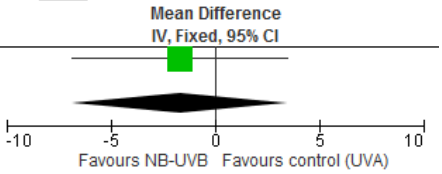
Heterogeneity: Not applicable
Test for overall effect: Z = 0.10 (P = 0.92)



Disease-specific physician assessment: Decrease in VAS scores of pruritus intensity at follow-up (12 weeks)

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	Control (UVA) Mean	Control (UVA) SD	Control (UVA) Total	Weight	Mean Difference IV, Fixed, 95% CI
Ko, BJD 2011	-3.91	8.2613	11	-2.24	2.8098	10	100.0%	-1.67 [-6.85, 3.51]
Total (95% CI)			**11**			**10**	**100.0%**	**-1.67 [-6.85, 3.51]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.63 (P = 0.53)



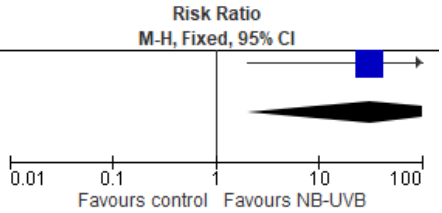
NB-UVB vs control (topical liquid paraffin and oral cetirizine) (cohort)

Critical

Disease-specific physician assessment: Mean VAS scores of pruritus intensity decreased to <3 (1 month & 3 months)

Study or Subgroup	NB-UVB Events	NB-UVB Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Sherjeena, IJDVL 2017	15	15	0	15	100.0%	31.00 [2.02, 475.12]
Total (95% CI)		**15**		**15**	**100.0%**	**31.00 [2.02, 475.12]**
Total events	15		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.47 (P = 0.01)

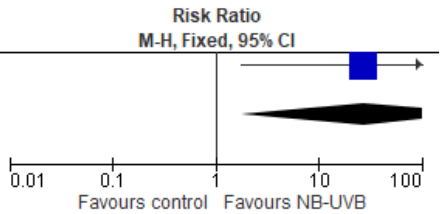


Important

Sustained clearance/benefit ≥6 months

Study or Subgroup	NB-UVB Events	NB-UVB Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Sherjeena, IJDVL 2017	13	15	0	15	100.0%	27.00 [1.75, 416.60]
Total (95% CI)		**15**		**15**	**100.0%**	**27.00 [1.75, 416.60]**
Total events	13		0			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.36 (P = 0.02)

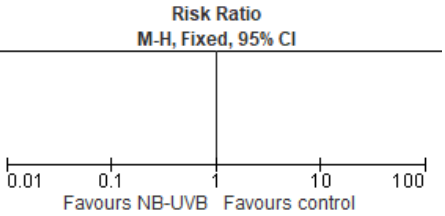


Less important

Minor adverse events

Study or Subgroup	NB-UVB Events	NB-UVB Total	Control Events	Control Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Sherjeena, IJDVL 2017	0	15	0	15		Not estimable
Total (95% CI)		**15**		**15**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



NB: Risk ratio cannot be calculated when there are no events on either arm

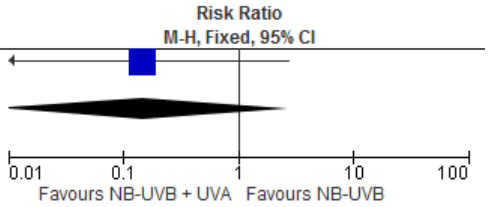
Combination NB-UVB+ UVA vs NB-UVB monotherapy over 16 weeks

Critical

Serious adverse events

Study or Subgroup	NB-UVB + UVA Events	NB-UVB + UVA Total	NB-UVB Events	NB-UVB Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Maul, JEADV 2017	0	26	3	27	100.0%	0.15 [0.01, 2.73]
Total (95% CI)		**26**		**27**	**100.0%**	**0.15 [0.01, 2.73]**
Total events	0		3			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.28 (P = 0.20)



DRAFT

B.13 Urticaria

Steroid-dependent antihistamine-refractory chronic urticaria

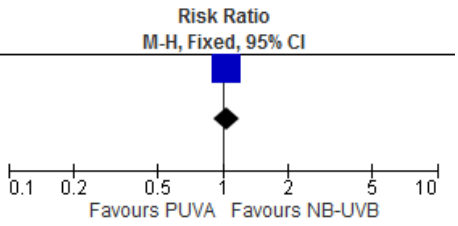
NB-UVB vs PUVA

Critical

Disease improvement: clearance (with or without antihistamines) or marked improvement (occasional episodes, less extensive disease, symptomatic improvement (++), reduced antihistamine use) at 90 days

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bishnoi, BJD 2017	24	25	23	25	100.0%	1.04 [0.91, 1.20]
Total (95% CI)		**25**		**25**	**100.0%**	**1.04 [0.91, 1.20]**
Total events	24		23			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.59 (P = 0.55)

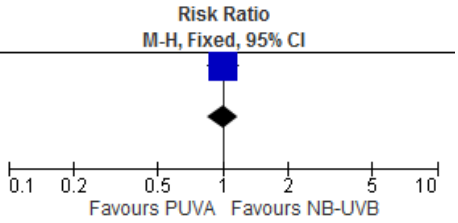


NB: Change of scale

Disease improvement: clearance (with or without antihistamines) or marked improvement (occasional episodes, less extensive disease, symptomatic improvement (++), reduced antihistamine use) at 180 days

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bishnoi, BJD 2017	23	25	23	25	100.0%	1.00 [0.85, 1.18]
Total (95% CI)		**25**		**25**	**100.0%**	**1.00 [0.85, 1.18]**
Total events	23		23			

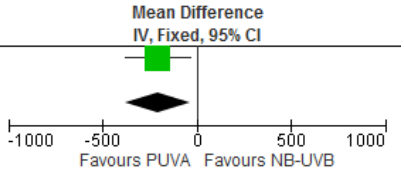
Heterogeneity: Not applicable
Test for overall effect: Z = 0.00 (P = 1.00)



Disease-specific physician assessment: mean reduction in immunoglobulin E (IgE) levels at 90 days

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	PUVA Mean	PUVA SD	PUVA Total	Weight	Mean Difference IV, Fixed, 95% CI
Bishnoi, BJD 2017	72.5	211.7	25	279.6	395.7	25	100.0%	-207.10 [-383.01, -31.19]
Total (95% CI)			**25**			**25**	**100.0%**	**-207.10 [-383.01, -31.19]**

Heterogeneity: Not applicable
Test for overall effect: Z = 2.31 (P = 0.02)



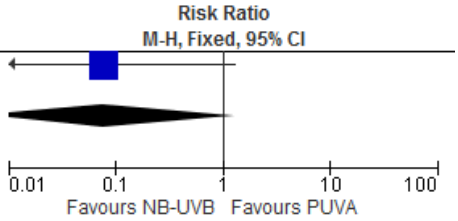
NB: Change of scale

Less important

Minor adverse events: nausea over 90 days

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bishnoi, BJD 2017	0	25	6	25	100.0%	0.08 [0.00, 1.30]
Total (95% CI)		**25**		**25**	**100.0%**	**0.08 [0.00, 1.30]**
Total events	0		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.78 (P = 0.08)

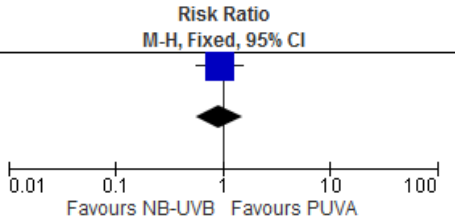


NB: Change of scale

Minor adverse events: xerosis and tanning over 90 days

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bishnoi, BJD 2017	13	25	14	25	100.0%	0.93 [0.56, 1.55]
Total (95% CI)		**25**		**25**	**100.0%**	**0.93 [0.56, 1.55]**
Total events	13		14			

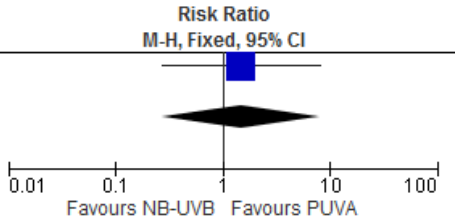
Heterogeneity: Not applicable
Test for overall effect: Z = 0.28 (P = 0.78)



Minor adverse events: melasma over 90 days

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bishnoi, BJD 2017	3	25	2	25	100.0%	1.50 [0.27, 8.22]
Total (95% CI)		**25**		**25**	**100.0%**	**1.50 [0.27, 8.22]**
Total events	3		2			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.47 (P = 0.64)



Chronic urticaria

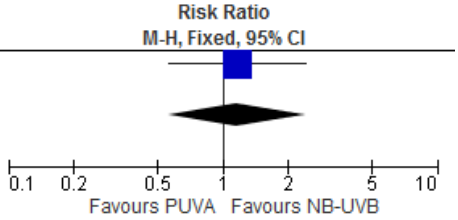
NB-UVB vs PUVA

Critical

Disease improvement: improved

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Khafagy, PPP 2013	7	12	6	12	100.0%	1.17 [0.56, 2.45]
Total (95% CI)		**12**		**12**	**100.0%**	**1.17 [0.56, 2.45]**
Total events	7		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.41 (P = 0.68)

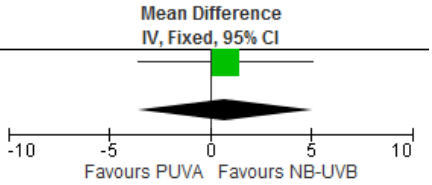


NB: Change of scale

Disease-specific physician assessment: Mean decrease in Total Severity Score (TSS)

Study or Subgroup	NB-UVB Mean	NB-UVB SD	NB-UVB Total	PUVA Mean	PUVA SD	PUVA Total	Weight	Mean Difference IV, Fixed, 95% CI
Khafagy, PPP 2013	9	5.56	12	8.25	5.28	12	100.0%	0.75 [-3.59, 5.09]
Total (95% CI)			**12**			**12**	**100.0%**	**0.75 [-3.59, 5.09]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.34 (P = 0.73)

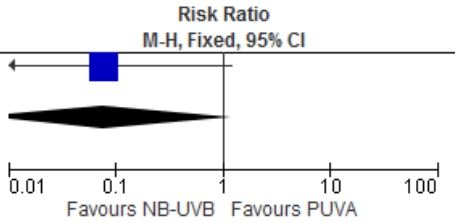


Not important

Minor adverse events: gastrointestinal tract upset

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Khafagy, PPP 2013	0	12	6	12	100.0%	0.08 [0.00, 1.23]
Total (95% CI)		**12**		**12**	**100.0%**	**0.08 [0.00, 1.23]**
Total events	0		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 1.81 (P = 0.07)



NB: Change of scale

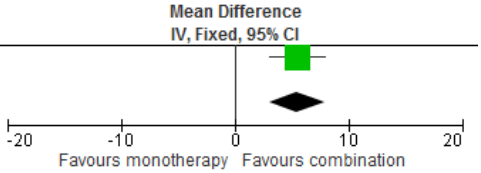
Combination NB-UVB + antihistamine (levocetirizine) vs antihistamine (levocetirizine) monotherapy

Critical

Disease improvement: mean change in urticaria activity score (UAS) (treatment session 10)

Study or Subgroup	Combination Mean	Combination SD	Combination Total	Monotherapy Mean	Monotherapy SD	Monotherapy Total	Weight	Mean Difference IV, Fixed, 95% CI
Engin, ADV 2008	11.58	6.75	48	6.09	4.68	33	100.0%	5.49 [3.00, 7.98]
Total (95% CI)			**48**			**33**	**100.0%**	**5.49 [3.00, 7.98]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.32 (P < 0.0001)

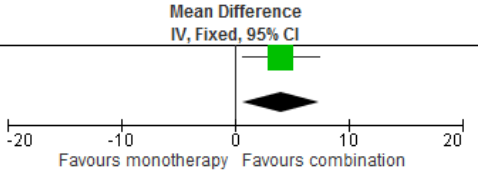


NB: Change of scale

Disease improvement: mean change in UAS (treatment session 20)

Study or Subgroup	Combination Mean	Combination SD	Combination Total	Monotherapy Mean	Monotherapy SD	Monotherapy Total	Weight	Mean Difference IV, Fixed, 95% CI
Engin, ADV 2008	16.78	7.91	48	12.76	7.47	33	100.0%	4.02 [0.63, 7.41]
Total (95% CI)			**48**			**33**	**100.0%**	**4.02 [0.63, 7.41]**

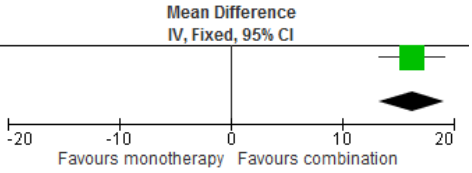
Heterogeneity: Not applicable
Test for overall effect: Z = 2.32 (P = 0.02)



Disease improvement: mean change in UAS (3-month follow-up)

Study or Subgroup	Combination Mean	Combination SD	Combination Total	Monotherapy Mean	Monotherapy SD	Monotherapy Total	Weight	Mean Difference IV, Fixed, 95% CI
Engin, ADV 2008	18.51	8.35	48	2.24	4.98	33	100.0%	16.27 [13.36, 19.18]
Total (95% CI)			**48**			**33**	**100.0%**	**16.27 [13.36, 19.18]**

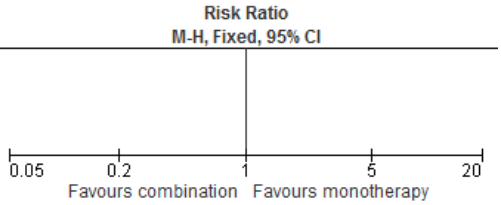
Heterogeneity: Not applicable
Test for overall effect: Z = 10.96 (P < 0.00001)



Serious adverse events

Study or Subgroup	Combination Events	Combination Total	Monotherapy Events	Monotherapy Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Engin, ADV 2008	0	48	0	33		Not estimable
Total (95% CI)		**48**		**33**		**Not estimable**
Total events	0		0			

Heterogeneity: Not applicable
Test for overall effect: Not applicable



NB: Risk ratio cannot be calculated when there are no events on either arm

DRAFT

B.14 Photodermatosis

Severe polymorphic light eruption (PLE)

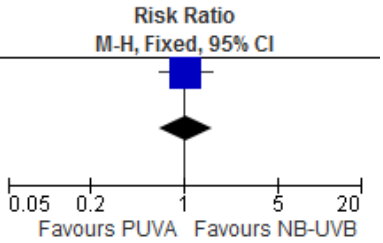
Prophylactic phototherapy: NB-UVB vs PUVA

Critical

Change in sun tolerance at 6 months: patients felt that the therapy had enabled them to spend more time outdoors

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bilsland, BJD 1993	10	13	9	12	100.0%	1.03 [0.66, 1.60]
Total (95% CI)		**13**		**12**	**100.0%**	**1.03 [0.66, 1.60]**
Total events	10		9			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.11 (P = 0.91)

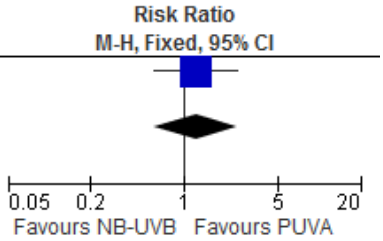


Less important

Minor adverse events: induced PLE (5 weeks)

Study or Subgroup	NB-UVB Events	NB-UVB Total	PUVA Events	PUVA Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bilsland, BJD 1993	8	13	6	12	100.0%	1.23 [0.60, 2.50]
Total (95% CI)		**13**		**12**	**100.0%**	**1.23 [0.60, 2.50]**
Total events	8		6			

Heterogeneity: Not applicable
Test for overall effect: Z = 0.57 (P = 0.57)



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Appendix C: Linking Evidence To Recommendations (LETR)

REVIEW TITLE/QUESTIONS:

(Q1) In people with skin diseases (excluding photodermatoses), what are the clinical effectiveness/efficacy, safety and tolerability of narrowband ultraviolet B phototherapy (NB-UVB) as monotherapy or in combination with another treatment, compared with other light-based therapy including the excimer laser and lamp, topical therapy, retinoid therapy, conventional systemic immunosuppression/immunomodulation, biological therapy, placebo, no treatment or NB-UVB in combination with a different treatment?

(Q2) In people with photodermatoses, what are the clinical effectiveness/efficacy, safety and tolerability of NB-UVB phototherapy as monotherapy or in combination with another treatment, used prophylactically and to treat active disease compared with photoprotective measures including sunscreen, topical and oral corticosteroids, other light-based therapy, systemic immunosuppression, other topical and oral anti-inflammatory/immunomodulator agents, biological therapy, placebo, no treatment or NB-UVB in combination with a different treatment?

Recommendations (these are after the evidence they relate to)

The wording for recommendations has been standardized so that they are clearly identifiable, unambiguous and specific:

"Offer[1]" or "Do not offer" (strong recommendation ↑↑ or ↓↓) [an intervention] to people with [skin disease] + [any relevant conditions]

- [1]or similar, e.g. "Use", "Provide", "Take", "Investigate", etc.)

"Consider" (weak recommendation ↑) [an intervention] for people with [skin disease] + [any relevant conditions]

The GDG is aware of the lack of high-quality evidence for some of these recommendations, therefore strong recommendations with an asterisk (*****) are based on available evidence and/or consensus within the GDG and specialist experience. Good practice point (GPP) recommendations are derived from informal consensus.

Relative values of different outcomes	**Q1: Skin diseases (excluding photodermatoses)** ***Critical*** • Disease improvement (e.g. PASI75, ≥50% repigmentation) (9) • Serious adverse events – acute /chronic (9) • Change in psychological well-being / quality of life (e.g. DLQI) (9) • Disease-specific physician assessment (e.g. PASI, EASI, SWAT (for CTCL), global) (8) • Disease-specific patient self-assessment (8) ***Important*** • Sustained clearance/benefit (e.g. ≥6 months) (6) • Treatment tolerability (6) • Reduction of other therapy (6) • Convenience of treatment (5) ***Less important*** • Minor adverse events (3)	**Q2: Photodermatoses** ***Critical*** • Serious adverse events – acute /chronic (9) • Change in psychological well-being / quality of life (e.g. DLQI) (9) • Disease-specific physician assessment (e.g. global) (8) • Disease-specific patient self-assessment (8) • Change in sun tolerance (7) ***Important*** • Sustained clearance/benefit (6) • Treatment tolerability (6) • Reduction of other therapy (6) • Convenience of treatment (5) ***Less important*** • Minor adverse events (3)
	Ranked outcomes according to our guideline development protocol[1] which uses the GRADE methodology (9-7 Critical for decision making; 6-4 Important but not critical for decision making; 3-1 not important for decision making), as agreed between clinicians and patient representatives on the GDG.	

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Balance between desirable and undesirable effects	Although there were a number of systematic reviews (SR)/meta-analysis (MA) for psoriasis, eczema/atopic dermatitis and vitiligo, there were problems with the randomised controlled trials (RCTs) included. This consisted of poor design and reporting problems including failure to register trials and declare primary outcomes, small sample size, short follow-up duration and poor reporting of risk of bias. There is a need for further well-designed studies to investigate the efficacy of treatments and follow-up studies to assess permanence of disease improvement/repigmentation as well as high-quality RCTs using standardised measures which also address quality of life (QofL). **Psoriasis** We identified seven SR on psoriasis.[2-8] In one case due to heterogeneity of data, MA could not be performed and RCT based evidence review was carried out.[7] An additional 27 RCTs were identified,[9-34] including 14 within-patient trials.[21-34] Eight comparative studies were found,[35-42] including five within-patient studies.[38-42] As there was enough higher quality studies, the GDG agreed non-comparative studies would not be considered unless included in a SR. **NB-UVB monotherapy** There is no SR assessing the efficacy of NB-UVB monotherapy in adults, however in a SR of treatment options for childhood psoriasis,[6] NB-UVB phototherapy was shown to be effective based on two open label studies[43,44] and three retrospective reviews.[45-47] A within-patient RCT of 15 adults showed efficacy of 311-nm UVB lamp in treatment of psoriasis.[22] **NB-UVB vs PUVA** The evidence for NB-UVB in comparison with PUVA has shown these treatments to be similarly effective. One SR demonstrated similar efficacy in the treatment of chronic plaque psoriasis and guttate psoriasis.[4] In another SR, NB-UVB and PUVA were found to be equally effective although the number of sessions required for psoriasis clearance was shown to be significantly lower with PUVA than with NB-UVB (approximately 17 vs. 25). Despite this, due to cutaneous carcinogenic risk with PUVA, NB-UVB remains the preferred option.[5]

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In a further RCT, 60 patients with chronic plaque psoriasis and ≥25% body surface area involvement all achieved PASI 75. Mean number of days to clear was 65.6 with NB-UVB and 49.2 with PUVA, which was significantly different. Minor adverse effects were more prevalent in patients receiving PUVA.[10]

In a RCT of 100 patients receiving Psoralen/NB-UVB or PUVA, there were no statistical difference between the clearance of the two groups, however there was statistically lower dose required for the Psoralen/NB-UVB group.[9]

In a small RCT of 30 patients receiving NB-UVB there was no significant difference between NB-UVB and PUVA clearance, although symptomatic erythema and erythroderma were more commonly seen in those receiving PUVA. The number of treatment exposures required for disease clearance was 15 for NB-UVB group and 18 for the PUVA group, however no adjustment was made for plaque thickness and the authors gave a low fixed dose of psoralen without adjusting for weight.[17]

Several studies have looked at within-patient comparison of topical PUVA and combination topical PUVA/NB-UVB. One RCT found that combination topical PUVA/NB-UVB to be significantly more effective, although only 12 patients were studied.[24] However, two further small studies did not show a difference in final clearance.[32,40]

NB-UVB vs BB-UVB

NB-UVB was found to be more effective than standard BB-UVB for moderate to severe plaque psoriasis.[7] NB-UVB was as effective as selective-BB-UVB (which has little emission <290 nm) in clearing chronic plaque psoriasis in a RCT of 100 patients.[48]

NB-UVB in combination with topical treatments

Vitamin D

Most studies have not shown an additional benefit from combination of calcipotriene/NB-UVB compared to NB-UVB monotherapy in PASI reduction.[8,49] However, two studies showed a significantly improved clearance in psoriasis by 2 weeks with combination treatment in 20 (calcipotriol/NB-UVB) and 30 (tacalcitol/NB-UVB) patients respectively.[23,42]

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Three other studies were reviewed but none of these compared outcome to NB-UVB alone.[26,36,38]

Retinoids

Combination of topical retinoids/NB-UVB has been studied in two small half-patient RCTs. In one study bexarotene gel 1%/NB-UVB was studied in 30 patients and in the other tazarotene 0.05%/NB-UVB was studied in 20 patients. In both studies significant improvement was seen in the retinoid/ NB-UVB treated lesions compared to NB-UVB monotherapy at the end of treatment (20 and 30 treatments respectively).[25,29]

Other topicals

Dawe *et al.* compared Dead Sea salt balneophototherapy with NB-UVB monotherapy for chronic plaque psoriasis. In a RCT 60 patients had pre-treatment with Dead Sea salt soaks to one arm and NB-UVB to both arms. There was no significant difference in remission or time to relapse.[27]

In a RCT of 71 patients, no difference in efficacy was seen between NB-UVB/SPA water and NB-UVB monotherapy groups at 3 weeks.[50]

Emollients

Studies have shown that transmission of NB-UVB can be increased by application of a lipophilic liquid 5 minutes prior to irradiation. Two studies have compared pre-treatment of half body areas with clear liquid emollients compared to no topical treatment prior to NB-UVB in within-patient RCTs. Jain *et al.* studied 20 children aged 5-14 years with psoriasis pre-treated with mineral oil 5 minutes prior to NB-UVB, and Penven *et al.* pre-treated 15 adults in a similar way with vaseline oil.[28,31] Both found a significant reduction in the total dose required to treat the emollient pre-treated side, as well as a reduction in the number of treatments to clearance. Thicker emollients and other topical treatments can have a photoprotective effect, and pre-treatment with these can reduce NB-UVB penetration, rendering treatment less effective.

NB-UVB in combination with systemic treatments

Methotrexate in combination with NB-UVB has been shown to result in rapid improvement with less cumulative doses of methotrexate or NB-UVB as monotherapy in two RCTs. In the first study 113 of 120

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patients completed the trial, with outcome measured at 6 months or when PASI 90 was reached. The combination methotrexate and NB-UVB group cleared significantly quicker than the methotrexate monotherapy group with significantly lower number of phototherapy sessions.[16]

The second study assessed outcome when PASI 90 was achieved or at 6 months and showed that 35 patients receiving combination methotrexate and NB-UVB achieved a higher clearance rate compared to those receiving methotrexate monotherapy (100% versus 83%). The combination group noted significantly quicker onset of improvement and shorter duration until clearance with a significantly lower cumulative dose than the monotherapy group ($p < 0.05$).[18]

There are no studies comparing combination acitretin/NB-UVB to acitretin monotherapy. However, a RCT of 60 patients comparing combination acitretin/PUVA to combination acitretin/NB-UVB showed no significant difference at the end of treatment between the two groups.[51]

In a randomized study of 39 psoriasis patients receiving combination NB-UVB/isotretinoin (0.5 mg/kg/day) or combination NB-UVB/placebo for 12 weeks there was no significant difference in clearance between the two groups. However, there was a significant reduction in the number of sessions in favour of the combined group. Although this combination is rarely used, the group argued that isotretinoin is a more suitable option in women of child-bearing potential in comparison to acitretin.

In a RCT of 30 patients, fumaric acid esters in combination with NB-UVB resulted in greater number of patients achieving PASI 75 at week 6 compared with fumaric acid esters monotherapy. However, at 6 months follow-up the outcomes were similar between the two groups.[20]

NB-UVB in combination with biological therapy

In a RCT, patients with chronic plaque psoriasis and a BMI of ≥35 were randomised to receive a combination of etanercept and NB-UVB or etanercept monotherapy. Addition of NB-UVB did not make a difference to outcomes in 25 patients based on PASI 75.[15] Similarly, in a study by Lynde *et al*., patients treated with combination NB-UVB and etanercept achieved similar PASI 75 to the etanercept monotherapy group at week

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24.[14]

However, some small studies do show this combination to be effective. A prospective within-patient study of 13 subjects showed a significant reduction in the relative modified PASI of selectively UVB treated plaques in patients on etanercept compared to non-irradiated plaques in the same patient.[33] In another study, where 20 patients were treated with etanercept, the combination etanercept and NB-UVB was given in eight patients with poor response to both phototherapy and etanercept monotherapy. All patients achieved PASI 75 and three of them had a complete remission after 14.6 ± 3.3 NB-UVB exposures. However, all of these patients relapsed, with PASI > 10 within 2.8 ± 1.7 months.[52]

A small within-patient RCT compared phototherapy in combination with ustekinumab to ustekinumab monotherapy in ten patients.[34] The NB-UVB treated side responded quicker and had a significantly greater PASI reduction than the non-irradiated side.

None of the above studies highlighted increased adverse risks associated with combining a course of NB-UVB and biologics. The studies assessed adding NB-UVB to a biologic and demonstrated that adding NB-UVB to a biologic can in some cases be beneficial compared to biologic monotherapy. However, it is not known whether or not adding a biologic to NB-UVB will be beneficial in comparison to NB-UVB monotherapy.

Targeted NB-UVB

Targeted NB-UVB has been compared with PUVA for treatment of palmoplantar psoriasis and three studies were included in a SR by Almutawa *et al*. The findings showed that although topical PUVA and targeted UVB are both effective, topical PUVA had a statistically non-significant advantage: pooled effect estimate of efficacy (75% reduction in severity score) was 77% topical PUVA compared to 61% targeted UVB. Different types of targeted UVB were found to be effective in treating both plaque psoriasis and palmoplantar psoriasis and this was shown to be 70% for excimer (308-nm) laser, 59% for excimer (308-nm) light and 49% for localised NB-UVB (311-312-nm) light, and in all cases more frequent treatment (2-3 times weekly) was more effective than when treatment was given every 7-14 days.[2]

In an open within-patient study(n=15), a 308-nm excimer laser and 308-nm excimer lamp were compared

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with 311-nm NB-UVB treatment in psoriatic plaques, using two different dose-increase schemes. No significant difference was shown between the treatments.[39]

In a small study of 21 patients two target lesions were selected and treated with either 307-nm ELD (three times) or dithranol ointment (twice daily) over 9 days. There was no difference between the two groups.[41]

Home NB-UVB

A pragmatic multicentre single blind RCT of 196 patients with psoriasis showed home NB-UVB to be safe and equally effective as outpatient administered NB-UVB. The main outcome measure was effectiveness as measured by the proportion of patients with a 50% or more reduction of the baseline PASI or self-administered psoriasis area and severity index (SAPASI). The burden of undergoing UVB phototherapy was significantly higher for patients treated in outpatients compared to those treated at home.[53]

Other studies

In a RCT of 40 patients, combination of cognitive-behavioural therapy/NB-UVB was compared to NB-UVB monotherapy and a significant improvement was noted in PASI 75 between the two groups over 8 weeks.[19]

In a randomized study of 80 patients with scalp psoriasis patients received UVA1 (using a UVA emitting light system) or NB-UVB (using a NB-UVB system using Philips TL01 lamps) over 6 weeks, a significant improvement was noted in both groups.[12]

Frequency of NB-UVB

In a RCT, the frequency of NB-UVB phototherapy was assessed in 113 patients. Ten percent more cleared with 3 times weekly (55 patients) compared to 2 times weekly (58 patients) although this was not detected as statistically significant as the calculation was based on number of treatments to clear rather than frequency of treatment. There was no detectable or clinically meaningful difference for number of treatments although patients cleared quicker with 3 times weekly treatment.[54]

Recommendation (GPP): The use of a standard emollient should generally be avoided for at least 2 hours before NB-UVB, particularly in people with psoriasis, as this may reduce UV transmission in the skin.

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Recommendation (↑↑): Offer NB-UVB to people with psoriasis who have an inadequate response to topical therapy or when topical therapy is not suitable, prior to offering systemic immunosuppression/immunomodulation therapies, including PUVA.

Recommendation (↑): Consider adding NB-UVB to selected systemic psoriasis treatment (i.e. acitretin, methotrexate, fumaric acid esters, apremilast or biologics) as a short-term rescue therapy to control flares if psoriasis is normally well controlled on these treatments.

Recommendation (↓↓): Do not offer NB-UVB phototherapy to people with psoriasis who are taking ciclosporin for their skin disease as a rescue therapy to control psoriasis flares (see contraindications).

Recommendation (GPP): Consider combination therapy of NB-UVB and acitretin in people with severe chronic psoriasis.

Future Research Recommendation: RCT evaluating PUVA compared to NB-UVB for people with hyperkeratotic plaque psoriasis.

Future Research Recommendation: RCT evaluating NB-UVB and placebo vs. NB-UVB in combination with acitretin for the treatment of people with psoriasis.

Vitiligo

NB-UVB phototherapy is used to repigment skin affected with vitiligo and stabilise the disease. The courses are longer compared to the treatment of other conditions, up to a year. The response largely depends on the anatomical site affected with vitiligo, the face and central parts of the body achieve better repigmentation than the acral sites. Recurrence on cessation of phototherapy is common. Therefore, pre-phototherapy assessment and clear explanation of the outcomes to the patients is essential. The sessions are two or three times weekly, depending on protocol. Treatment is monitored with medical photographs, taken before the start and repeated on the follow ups, usually every three months.

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A total of 12 SR/MA were included.[55-66]

NB-UVB phototherapy vs PUVA

Since the initial report in 1997 of the treatment of non-segmental vitiligo, NB-UVB phototherapy has replaced PUVA as the first choice phototherapy option. Overall, treatment response to NB-UVB phototherapy was better than that to PUVA therapy. The response largely depends on the anatomical site affected by vitiligo: the best results are obtained on the face and neck, followed by the trunk and extremities, whereas the hands hands and feet show minimal repigmentation.[58] The colour match of repigmentation to normal skin colour is better with NB-UVB than with PUVA, and NB-UVB is more effective in inducing repigmentation in unstable vitiligo than PUVA.[67]

NB-UVB phototherapy vs 308 nm excimer laser

A MA showed that there was no statistically significant difference between NB-UVB phototherapy and 308 nm excimer laser in achieving ≥ 75% or 100% repigmentation (p>0.05).[63] However, more patients achieved ≥ 50% repigmentation with 308 nm laser than with NB-UVB phototherapy [two studies, RR = 1.39, (95% CI 1.05-1.85); *p*=0.002].[63] This was confirmed in a later SR assessing 50% and 75% repigmentation.[60]

Combination therapies

NB-UVB phototherapy is often used in combination with other treatments rather than as monotherapy. An updated Cochrane SR that includes RCTs which assessed NB-UVB found some evidence that NB-UVB in combination with other therapies is superior to NB-UVB monotherapy at achieving ≥ 75% repigmentation.[62]

NB-UVB phototherapy in combination with oral treatments

A RCT (n=86) included in the Cochrane SR,[62] showed that weekly oral mini-pulse therapy (OMP) of **betamethasone** 0.1 mg/kg of body weight on two consecutive days for 3 months then tapering of the dose by 1 mg/month over 3 months, in combination with NB-UVB phototherapy, was better at achieving ≥75% repigmentation than OMP alone [RR = 7.41 (95% CI, 1.03 – 53.26), p = 0.014].[68]

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One RCT included in both the Cochrane and another SR,[58,62] comparing the combination of NB-UVB with **antioxidant pool** (alpha lipoic acid, vitamin C, E and fatty acids) seems to be more effective in achieving ≥75% repigmentation than NB-UVB monotherapy ($p < 0.05$).[69] Another RCT comparing the combination of NB-UVB with oral **vitamin E** was shown to be slightly better but not statistically significant in obtaining >75% repigmentation than NB-UVB alone.[70]

NB-UVB phototherapy in combination with topical treatments

It is difficult to draw conclusions because of the heterogeneity in trial designs and inconsistencies in the results.

A MA of 7 RCTs showed the combination of NB-UVB and topical agents (**calcineurin inhibitors or topical vitamin D analogues**) is not significantly superior to NB-UVB monotherapy.[57] However, most of the 12 RCTs not included in the above SRs agreed that NB-UVB in combination with one or more other therapies was superior to NB-UVB monotherapy, except for the combination of NB-UVB plus topical **calcipotriol.**[71] Also, a more recent SR has shown that topical NB-UVB in combination with topical calcineurin inhibitors [3 studies, RR = 1.79, 95% CI (1.06 - 3.01), $p = 0.03$] or 5-FU injection [1 study, RR = 7.25, 95% CI (2.71 - 19.36), $p < 0.0001$] or ERYAG laser ablation and topical 5-FU in combination with NB-UVB [1 study, RR = 5.60, 95% CI (2.31 - 13.59), $p = 0.0001$] or CO 2 laser [2 studies, RR = 7.00 (1.30 - 37.60), $p = 0.02$] is superior to NB-UVB monotherapy at achieving ≥75% repigmentation.[56]

A RCT comparing the combination of NB-UVB with topical **pimecrolimus** was more effective in achieving ≥75% repigmentation of the facial lesions than NB-UVB with placebo ($p < 0.05$); there was no statistically significant difference between the two groups on other body areas.[72]

There were inconsistent results in several comparative studies comparing NB-UVB in combination with **tacrolimus** to NB-UVB monotherapy. One study found a much better quantitative response on the head and neck with the combination compared to monotherapy than at other sites.[73] Another study reported that patients with early disease were observed to respond better than those with long-standing vitiligo and mean time to onset of repigmentation was quicker with the combination.[74] However, a recent SR has shown that tacrolimus in combination with NB-UVB is slightly better at achieving ≥75% repigmentation [2 studies, RR

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1.34; 95% CI (1.05 – 1.71), p = 0.02].[55]

Most of the comparative studies agreed that NB-UVB in combination with one or more other therapies was superior to NB-UVB monotherapy,[75-80] except when NB-UVB was in combination with either **betamethasone dipropionate,**[81] **pimecrolimus**[81] or topical **placental extract**[82] where there was no difference and **L-phenylalanine** cream where the monotherapy produced better repigmentation results.[81]

Most comparative studies showed no difference between NB-UVB in combination with **calcipotriol** and NB-UVB monotherapy.[81,83,84]

Although NB-UVB in combination with **calcineurin inhibitors** may increase treatment outcomes in vitiligo affecting the face and neck, a risk benefit discussion with the patient is advised due to the possible/theoretical increased risk of skin cancers.

Other combination treatments

One RCT (n=55) that evaluated repigmentation using the VASI found that combination of **afamelanotide** implant with NB-UVB was superior to NB-UVB monotherapy ($p<0.05$);[85] however, the degree of repigmentation improved in both treatment groups although it took longer with the monotherapy.

Another four-arm RCT compared combination NB-UVB and **fractional carbon dioxide (CO_2) laser**, with combination **platelet-rich plasma (PRP) injection** and fractional CO_2 laser, PRP injection monotherapy and fractional CO_2 laser monotherapy. The combination NB-UVB and fractional CO_2 laser was superior to the monotherapies but not to the combination of PRP injection and fractional CO_2 laser.[86]

Home NB-UVB phototherapy

The included SRs did not investigate home phototherapy. A pilot study (n=29) showed **hand-held NB-UVB home** phototherapy to be more effective than placebo at achieving ≥ 75% repigmentation at 4 month-follow-up.[87] A current RCT is assessing the comparative effectiveness of potent topical corticosteroid, home-based hand-held NB-UVB or combination of the two, for the management of vitiligo.[88]

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NB-UVB phototherapy in children

There is a lack of studies on NB-UVB in children. This is an issue of particular concern as vitiligo often starts in childhood and early treatment seems to be more effective.

There is no consensus on the safe maximum number of NB-UVB sessions. The BAD Service Guidance and Standards for Phototherapy Units state that there are no absolute limits to the numbers of treatments patients may have. However, the figures of >200 PUVA and >500 UVB exposures are thresholds to trigger skin cancer screening review. There will be patients in whom it is clinically appropriate to continue to treat beyond these numbers. Decisions about whether or not to continue to treat past these arbitrary threshold numbers are the responsibility of the Dermatology Consultant.[89]

Recommendation (GPP): Inform people with vitiligo who are eligible for NB-UVB of the requirements (depending on local protocols: a pre-therapy assessment, medical photographs taken prior to and during follow-ups usually every 3 months, two to three sessions weekly possible for up to 1 year), and the likely response depending on the affected anatomical site (e.g. the face and trunk achieve better repigmentation than acral sites).

Recommendation (↑↑): Offer NB-UVB (whole body or localised, e.g. home-based hand-held) as first-line phototherapy to people with vitiligo who have an inadequate response to topical therapy and/or with **extensive** or **progressive** disease. This *may* be combined with calcineurin antagonist[†] (more evidence for tacrolimus) or potent topical corticosteroid[‡], on localised sites for a time period appropriate to the body site.

[†] Prior to combination NB-UVB and topical tacrolimus treatment, advise patients that there is a theoretical increased risk of skin cancer with this combination of treatment. A shared decision should be made with the person with vitiligo, taking into account other alternatives, the individual's personal and family history of risk of skin cancer and the impact of the vitiligo.

[‡] Limited evidence for combination NB-UVB and potent topical corticosteroid as well as high risk of loss of response upon stopping treatment. Prior to this combination, consider the risk benefit ratio of the prolonged use of potent topical corticosteroid.

Recommendation (↑): Consider oral betamethasone (see vitiligo guidelines for specific treatment protocol)[90] in

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combination with NB-UVB in people with **rapidly progressive vitiligo** to arrest activity of the disease after careful consideration of risks and benefits.

Future Research Recommendation: To determine the safety of prolonged courses of NB-UVB for vitiligo, particularly in children.

Eczema

One SR on treatments for atopic eczema[91] and three on phototherapy for atopic dermatitis (AD)[65,92,93] had similar problems with the RCTs as the psoriasis SR. With heterogeneity of data due to poor design and reporting problems including failure to register trials and declare primary outcomes, small sample size, short follow-up duration and poor reporting of risk of bias.

On the basis of the included evidence, NB-UVB and UVA1 appeared the most effective treatment modalities for the reduction of clinical signs and symptoms of AD.[92,93] No serious side-effects were reported.

Further well-designed, adequately powered RCTs are required.

Two non-randomised comparative studies, one compared combination NB-UVB and UVA with NB-UVB and showed combination therapy had greater efficacy than monotherapy.[94] The second in children with moderate-to-severe eczema offered NB-UVB compared patients that received the treatment with those that had declined (control group) and showed NB-UVB to be effective.[95] The mean difference in SASSAD score at 12 weeks was -13.2 (95% CI -18.7 to -7.7).

A number of non-comparative studies in both children and adults (n=296) looking at NB-UVB monotherapy[45,96-103] or in combination with UVA,[46] agreed that NB-UVB is effective in moderate, severe and chronic atopic dermatitis/eczema.[45,46,96-100] There is evidence from several studies to support use and efficacy in children with atopic eczema, with no evidence at present of any longer term adverse effects, but as with all UV-based phototherapies, further studies and ongoing vigilance are required.

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The GDG did not identify any robust evidence to support the addition of NB-UVB to methotrexate or dupilumab but the use of NB-UVB for rescue therapy in patients normally well controlled on methotrexate is an effective option based on the experience of the GDG.

While the action spectrum for psoriasis has been defined this hasn't been established for eczema. It seems that eczema is responsive to most components of the UV spectrum – UVB, UVA, UVA1 and psoralen-UVA, but further studies are required in order to establish whether the phenotypic features of eczema (such as acute flares, lichenified eczema or nodular prurigo) influence responsiveness to phototherapy (UVB, UVA, UVA1) or PUVA.

Recommendation (↑↑): Offer NB-UVB as first-line phototherapy to people with eczema who have an inadequate response to topical therapy alone, prior to offering systemic immunosuppression/immunomodulation therapies, including PUVA.

Recommendation (GPP): Emollients and, if necessary, short-term intermittent topical corticosteroids should continue to be used during a course of phototherapy for eczema.

Recommendation (GPP): Stabilise severe, acute flares of eczema prior to commencing NB-UVB therapy by optimizing topical therapy, the use of systemic corticosteroid and/or antibiotics as appropriate.

Recommendation (GPP): Consider adding NB-UVB to methotrexate or other suitable immunomodulalatory medication (avoid in ciclosporin, mycophenolate, azathioprine and tacrolimus) as a short-term rescue therapy to control eczema flares, if eczema normally well controlled on this systemic treatment.

Future Research Recommendation: RCTs to evaluate NB-UVB, PUVA and UVA1 for people with eczema according to disease pattern, in particular, whether specific phototherapy may be more effective in acute flares of eczema, chronic lichenified eczema or nodular prurigo.

Future Research Recommendation: Determine the action spectrum for phototherapy in eczema.

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Palmoplantar dermatoses

Palmoplantar Psoriasis

Two of the SR for psoriasis identified a couple of within-patient RCTs on the efficacy of and short-term safety of targeted NB-UVB phototherapy compared to topical PUVA in the treatment of localized palmoplantar psoriasis.[2,4] The small study by Neuman compared NB-UVB using the excimer (308-nm) light to topical PUVA in 10 patients,[104] This reported that both treatments showed similar efficacy, with a mean reduction in modified PASI score of 64.64 % with PUVA and 63.57% with excimer light. Another study compared localized NB-UVB (311–313-nm) light to topical PUVA in 21 patients.[105] A reduction in severity scores of 85% with PUVA compared with 61% with NB-UVB, with clearance rates of 24% and 0%, respectively, was reported. The Almutara *et al.* SR concluded that although topical PUVA and targeted UVB are both effective, topical PUVA may be more effective: pooled effect estimate of efficacy (75% reduction in severity score) was 77% topical PUVA compared to 61% targeted UVB.[2] This also found that different types of targeted UVB were effective in treating both plaque psoriasis and palmoplantar psoriasis and this was shown to be 70% for excimer (308-nm) laser, 59% for excimer light (308-nm) and 49% for localised NB-UVB (311-312nm).

One large retrospective comparative study (n=92) also reported both NB-UVB and topical PUVA were effective for treating palmoplantar dermatoses however assessment and outcome measures were unclear and no statistical analysis was carried out.[106] A second comparative study which compared methotrexate combined with a variety of topical treatment and NB-UVB showed no significant difference in disease-specific physician assessment or improvement in ESIF between combination NB-UVB plus methotrexate (17 patients) and NB-UVB monotherapy (12 patients).[107]

In addition there are 5 non-comparative studies. Two studies used 308 nm excimer laser and included 15 and 10 patients respectively.[108,109] Two studies included 54 and 7 patients and used non-laser 308-nm monochromatic excimer light (MEL).[110,111] One study treated 11 patients with local NB-UVB.[112] These reported good and sustained efficacy in the majority of cases.

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There are no studies comparing NB-UVB to local PUVA using oral psoralen in the treatment of palmoplantar psoriasis.

Recommendation (↑): Consider NB-UVB in people with palmoplantar psoriasis who have an inadequate response to topical therapy when PUVA is contraindicated.

Palmoplantar eczema

A RCT which included 60 patients unresponsive to clobetasol propionate, compared local NB-UVB with immersion PUVA over a period of 12 weeks. Patients were assessed using the Physician's global assessment score (PGA) and a modified form of the Total Lesion and Symptom Score (mTLSS). This showed reduced severity of chronic palmar hand eczema in both groups. In the PUVA group, 13 out of the 23 who completed treatment were clear or almost clear compared to 7 of 23 in the NB-UVB group.[113]

In a small within patient randomised trial of 15 patients comparing local NB-UVB to topical PUVA in patients with dyshidrotic eczema, both treatments were found to be equally effective with a reduction in the mean severity scores using a non-validated score of 75% in both groups. Two patients cleared and 9 showed marked clinical improvement in the NB-UVB group. This compared to 1 patient who cleared and 9 who showed marked clinical improvement for topical PUVA.[105]

In addition there are 3 non comparative studies (n= 64). Thirty patients with hand and/or foot eczema were treated with the 308 nm excimer laser with significant reduction in the PGA and mTLSS score,[114] Aubin reported the use of non-laser 308-nm monochromatic excimer light to treat 18 patients with hand eczema[115] and Nordal reported 16 patients with hand eczema treated local NB-UVB.[112] These documented efficacy in most patients.

There are no studies comparing NB-UVB to PUVA using oral psoralen in the treatment of hand and foot eczema

Recommendation (↑): Consider NB-UVB in people with palmoplantar eczema who have an inadequate

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response to topical therapy when PUVA is contraindicated.

Palmoplantar pustulosis

One within-patient RCT was identified comparing local NB-UVB therapy to UVA1 phototherapy in Palmoplantar pustulosis. Sixty-four patients completed the study in which treatment was carried out 3 times per week over 12 weeks. The Palmoplantar Pustular Psoriasis area and Severity Index was used for assessment and showed reduction in both groups but with a significantly greater reduction in the UVA1 group when compared to NB-UVB.[116]

There are 4 non-comparative studies (n= 32) on the hand and foot dermatoses, which include patients with palmoplantar pustulosis. Al-Mutari *et al.* reported 8 patients treated with the 308 nm excimer laser,[108], The non-laser 308-nm monochromatic excimer light was used in 17 patients in the report by Aubin *et al.* and in 4 patients in the series by Campolmi *et al*.[111,115] Three patients with pustulosis were included in the study by Nordal *et al.* which used local NB-UVB.[112] These studies, which included only small number of patients with palmoplantar pustulosis, generally reported good efficacy.

There are no studies comparing NB-UVB to PUVA using oral psoralen in the treatment of palmoplantar pustulosis.

No recommendation (Θ): There is insufficient evidence to support the use of NB-UVB in people with palmoplantar pustulosis

Future Research Recommendation: RCT evaluating the use of oral PUVA compared to NB-UVB for the treatment of palmoplantar psoriasis and palmoplantar eczema

Lichen planus

Three SR examined the efficacy of available treatment modalities for cutaneous lichen planus.[65,117,118] Two open prospective studies (n=15) identified complete and sustained responses in the majority of patients treated with NB-

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UVB.[119,120] The superiority of NB-UVB (n=23) over prednisolone given at 0.3 mg/kg/day for 6 weeks (n=23) for generalised LP was reported in a RCT.[121] In a retrospective non-randomized controlled study patients were found to have a better initial response to PUVA (n=15) than NB-UVB (n=13), although recurrence rates upon long-term follow-up did not differ significantly between the two groups.[122]

No significant difference was found between the combination of NB-UVB plus topical steroids and NB-UVB monotherapy in an additional comparative study.[123] Four retrospective non-comparative studies (n=58) further underlined the efficacy of NB-UVB in the treatment of cutaneous lichen planus.[124-127]

Further well-designed studies are warranted to investigate the efficacy of all treatments in the management of cutaneous lichen planus and to determine how these might differ between the different clinical variants.

Recommendation (↑): Consider NB-UVB in people with cutaneous lichen planus who have an inadequate response to topical therapy.

Morphoea (localised scleroderma)

One SR on the management of morphea identified one RCT of 64 patients which compared NB-UVB with low- and medium-dose UVA-1 (20 J/cm^2 and 50 J/cm^2) respectively.[128] All modalities resulted in a significant improvement to skin status with only medium-dose UVA-1 demonstrating significantly greater efficacy compared with NB-UVB.

One non-comparative study (n=11) assessed the response of plaque, linear and generalised morphoea to NB-UVB, systemic and topical PUVA. No significant difference was identified between modalities, with all proving to be effective at softening the affected skin.[129]

Recommendation (↑): Consider NB-UVB in people with morphoea (localised scleroderma) when alternative, more effective phototherapy or systemic therapy, is not available or is contraindicated

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Mycosis fungoides (MF)

One SR and MA compared the efficacy and adverse effects of NB-UVB compared to PUVA (bath or oral) in early-stage MF (defined as stages IA to IIA).[130] There were a total of 527 patients treated with PUVA compared with 251 treated with NB-UVB. Both treatments were effective at producing a partial or complete response when used for early-stage MF (any response in (87.6%) treated with NB-UVB and (90.9%) of patients treated with PUVA). However, NB-UVB was associated with a significantly lower rate of complete response compared with PUVA. This was also seen in the subgroup analysis of stages IA only and stage IB only MF. Proportions of patients with partial responses were similar, whereas failed responses were significantly higher for patients treated with NB-UVB regardless of any stage, stage IA only, or stage IB only. Not all studies reported on relapse-free interval for NB-UVB and PUVA but when the available data was pooled, NB-UVB was associated with significantly lower hazard ratio of freedom from recurrence compared with PUVA. No significant difference was found between NB-UVB and PUVA in terms of adverse effects.

Two small non-randomised comparative studies (n=16) also found no significant difference in the efficacy between NB-UVB and PUVA in the clearance of lesions for early-stage MF.[131,132] An additional 28, mostly retrospective case series (n=639: including at least 100 children/young people) not included in the SR also found that NB-UVB monotherapy or in combination with topical corticosteroids was an effective treatment option for early-stage MF. However, recurrences after discontinuation of therapy tend to occur earlier with NB-UVB than with PUVA, especially when an incomplete histological or molecular response was achieved.

Although PUVA is associated with a significantly higher rate of complete response and lower rate of disease recurrence compared with NB-UVB when used for early-stage MF, NB-UVB remains an effective treatment and is often the preferred modality in such cases owing to its less severe short and long term adverse effect profile. NB-UVB should also be considered for the treatment of coexisting patches and plaques in patients with stage IIB and above whose individual tumours are being treated with other therapies such as localized radiotherapy, following risk benefit discussion with the patient

Recommendation (↑↑): Offer NB-UVB to people with mycosis fungoides for treatment of patches or plaques.

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Pityriasis lichenoides

One SR on the use of phototherapy for the treatment of pityriasis lichenoides (PL) in the paediatric population including both pityriasis lichenoides et varioliformis acuta (PLEVA) and pityriasis lichenoides chronica (PLC) identified four case series and five case reports relating to the use of NB-UVB (n=29).[133] In the 23 cases with sufficiently reported data, initial clearance occurred in 74% (17/23) and partial clearance in 13% of patients (3/23).

One RCT compared NB-UVB to PUVA for the treatment of generalised disease unresponsive to topical or systemic therapy (n=15). A greater than 50% improvement occurred in all patients, with no significant differences between the treatment modalities.[134]

The role of NB-UVB as an effective and safe method for treatment of PL was further supported by several retrospective non-comparative studies (n=81: PLC=29; PLEVA=27).[45,98,127,135-137]

NB-UVB shows promising results and a favourable side-effect profile in the treatment of PL.

Recommendation (↑): Consider NB-UVB in people with PLC and PLEVA who have an inadequate response to topical therapy.

Progressive macular hypomelanosis

Progressive macular hypomelnaosis is characterised by the progressive development of hypopigmented macules over the trunk in the absence of preceding inflammation. Two studies, one within-patient RCT (n=10)[138] and one cohort study (n=35)[139] compared NB-UVB plus antimicrobial therapy (benzoyl peroxide/clindamycin) with NB-UVB monotherapy. Both treatment arms were associated with repigmentation with no significant difference identified in either study. However, maintenance of repigmentation at 6-months was only present in 2/15 and 2/14 in the cohort study and 4/7 in the RCT.

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A cohort study comparing NB-UVB (n=37) and PUVA (n=20) demonstrated the efficacy of both treatments without a significant difference. Repigmentation of ≥50% occurred in 53.6% and 59.2% respectively of patients, however 32% did not complete treatment. A lack of follow up data makes assessment of sustained benefit difficult in this study, but of those contacted at an unspecified time point, only 28% had reported continued clearance.[140]

Three case series (n=49) further support NB-UVB therapy as an effective and safe method for the treatment of progressive macular hypomelanosis.[141-143]

Recommendation (↑): Consider NB-UVB in people with progressive macular hypomelanosis.

Subacute and nodular Prurigo

A single RCT,[144] compared the response of subacute prurigo to NB-UVB, bath PUVA and MD-UVA1 (n=33). Whilst all arms were efficacious, NB-UVB proved less effective than the others. However, at 6-week follow-up, more patients in NB-UVB were reported to have stable disease (30.8% NB-UVB, 0% PUVA & 9.1% MD-UVA1)

One prospective study (n=10) found that NB-UVB phototherapy given once a week for an average of 24.3 irradiations (23.88 J/cm) appeared to be an effective treatment for recalcitrant nodular prurigo, achieving sustained clearance in 90% by 1 year.[145] One small retrospective study (n=3) for prurigo had similar results.[127]

Recommendation (↑): Consider NB-UVB in people with subacute prurigo who have an inadequate response to topical therapy.

Recommendation (↑): Consider NB-UVB in people with nodular prurigo who have an inadequate response to topical therapy when alternative, more effective phototherapy is not available or is contraindicated.

Future Research Recommendation: RCT evaluating the use of PUVA compared to NB-UVB for the treatment of nodular prurigo.

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Pruritus

One RCT comparing NB-UVB to UVA showed no difference in the decrease in VAS scores of pruritus intensity at end of treatment or follow-up.[146] A second RCT concluded NB-UVB monotherapy, and the combination of UVB-NB with UVA are equally effective in treating inflammatory skin disease and indifferent in reducing disease-associated pruritus.[147] Therefore advocating UVA to NB-UVB for pruritic inflammatory skin disease should be abandoned.

A non-randomised comparative study which compared NB-UVB with a control of topical liquid paraffin and oral cetirizine for uremic pruritus in stage IV or V renal disease found a significant decrease in VAS scores of pruritus intensity with NB-UVB.[148]

Three prospective[149-151] and one retrospective[127] non-comparative studies also concluded that NB-UVB is an effective and well-tolerated treatment option for patients with generalized pruritus. Recurrence of pruritus, however, is a frequent problem.

Recommendation (↑↑): Offer NB-UVB to people with pruritus associated with severe kidney disease where other interventions have failed or are not appropriate.

Recommendation (↑): Consider NB-UVB in people with idiopathic or secondary pruritus (when the underlying cause cannot be corrected), who have an inadequate response to topical therapy.

Chronic spontaneous urticaria (CSU)

Three RCTs were identified.[152-154] Two studies which compared NB-UVB to PUVA showed no difference for disease improvement between the two.[153,154] Adverse events encountered were minimal. One concluded that phototherapy, especially NB-UVB, is an effective, safe and affordable therapeutic modality for steroid-dependent CSU and should be discussed with patients before next-line treatment options such as omalizumab, ciclosporin and other immunosuppressants are initiated.[154] Patients should be made aware that there is a choice of treatments as, in the

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GDG's experience, many patients prefer a skin-directed treatment that can be remittive and not associated with the potential side effects of systemic drug.

The third RCT compared the combination of NB-UVB and antihistamine with antihistamine monotherapy for chronic urticaria.[152] The reduction in urticaria activity score and VAS was statistically significant for both groups. However, the mean urticaria activity score was significantly lower in the NB-UVB group at session 10 (22.6 compared to 27.3) and session 20 (17.4 compared to 20.7). Statistically significant differences were also noted in VAS between the 2 groups ($p < 0.01$) at 3 months post-treatment. NB-UVB may be an effective complementary treatment for patients with chronic urticaria. This study also showed that the improvement following NB-UVB was sustained to at least 3 months (the study did not involve longer follow-up).

Two prospective and one retrospective case series also showed NB-UVB therapy is an effective, well-tolerated second-line treatment option for chronic spontaneous urticaria.[155-157]

Clinical experience suggests that NB-UVB therapy is helpful for physical urticarias including symptomatic dermographism. Although there is no good quality published evidence to support this. One small non-comparative study reported an improvement in dermographism associated with NB-UVB therapy.[156]

Recommendation (↑↑): Consider NB-UVB in people with chronic spontaneous urticaria who have an inadequate response to first-line therapy. H_1-antihistamines should generally be combined with phototherapy.

Recommendation (GPP): NB-UVB phototherapy should be discussed with people with chronic spontaneous urticaria, who have an inadequate response to first-line therapy, as a treatment option before initiating next-line systemic therapies (e.g. omalizumab, ciclosporin).

Recommendation (GPP): Consider NB-UVB in people with symptomatic dermographism who have an inadequate response to first-line therapy. H_1-antihistamines should generally be combined with phototherapy.

Photodermatoses

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In photodermatosis NB-UVB is used prophylactically. One SR on the therapeutic use of NB-UVB for skin disorders other than psoriasis identified two studies, one RCT[158] and one open prospective study.[65] The RCT compared NB-UVB (TL-01) with PUVA and showed no significant differences between the two treatments in the management for severe polymorphic light eruption (PLE).[158] During the treatment phase, prophylactic phototherapy using either PUVA or UVB was well tolerated by both groups, with similar profiles of adverse effects. The efficacy of NB-UVB is further backed up by other studies[159,160] and is superior to combination UVA/UVB.[159] There is also limited evidence in considering the use of NB-UVB in children.[45]

In chronic actinic dermatitis, two case series (n=21) in skin types IV and V showed that NBUVB administered under corticosteroid cover appear to be effective with a good short-term safety profile.[161,162] Both studies involved a three times weekly regime for approximately three months, followed by a maintenance phase. The improvement was maintained at 12 months follow up.

In erythropoietic protoporphyria, two case series (n=18) on skin types 1-2 shows NB-UVB to improve sun tolerance in 7/12 and 6/6 (5 children) patients respectively, which may be maintained for months.[163,164]

In actinic prurigo, at four months follow-up to an open prophylactic phototherapy trial all six patients (of which 3 were children) reported sustained improvement in their sun tolerance after NB-UVB.[164]

In hydroa vacciniforme, there was a mixed response in the three case series (n=11 of which 10 were children) with no sustained 'hardening' effect demonstrable in six, although the remaining five patients found NB-UVB to be beneficial.[45,164,165]

In solar urticaria, there is high risk of provocation of solar urticaria (up to 50%), painful marked erythema (up to 30%), and high relapse rate (20%)[166] and it therefore cannot be routinely recommended, despite the authors' conclusions. However, in patients with non UVB-sensitive solar urticaria (confirmed on phototesting), NB-UVB can be considered.

Recommendation (↑↑): Offer NB-UVB prophylactic phototherapy to people who are severely affected by polymorphic light eruption and have an inadequate response to photoprotection.

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Recommendation (↑↑): Offer* NB-UVB prophylactic phototherapy as a treatment option to people with erythropoietic protoporphyria.

Recommendation (↑): Consider NB-UVB prophylactic phototherapy, after photo-investigation and specific advice from a specialist photobiology centre, in people who have an inadequate response to photoprotection and topical therapy for the following conditions:

- actinic prurigo
- hydroa vacciniforme
- chronic actinic dermatitis¶

¶only in people with Fitzpatrick skin type IV and above combined with the use of emollients and topical/oral corticosteroid

Recommendation (↑): Consider NB-UVB, after photo-investigation and advice from a specialist centre in people with solar urticaria who have an inadequate response to photoprotection and high dose antihistamines.

Alopecia Areata

No comparative studies were identified. Two non-comparative studies (n=35) concluded NB-UVB is not an effective treatment in adults and children.[45,167] A third (n=8) showed regrowth in half of the patients.[115] The GDG agreed that the evidence does not support the use of NB-UVB for alopecia areata.

Recommendation (↓↓): Do not offer NB-UVB as a treatment for alopecia areata

Acquired perforating dermatosis

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No comparative studies were identified. One small case series (n=5) and 2 case reports showed NB-UVB treatment benefited patient by reducing the severity of pruritus and skin lesions in acquired perforating dematosis.[168-170] An additional case report using NB-UVB in combination with oral hydroxyzine 50 mg/day and a topical emollient (50/50 liquid paraffin/soft paraffin) also had the same result.[171]

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with acquired perforating dermatosis

Generalised granuloma annulare/giant cell granuloma

No comparative studies were identified. There was one retrospective case series (n=13).[172] NB-UVB was effective in a substantial portion of patients with of generalised granuloma annulare (3 complete, 4 partial). Six case reports also reported disease improvement. To determine the true efficacy of this therapeutic modality, a prospective study comparing it to PUVA is warranted.

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with generalised granuloma annulare.

Future research recommendation: RCT to evaluate NB-UVB compared to PUVA in the treatment of generalised granuloma annulare.

Graft-versus-host disease (GVHD)

Two small studies (n=25) from Spain & Brazil used NB-UVB (9) or PUVA (16) for chronic or acute GVHD. All patients with acute GVHD showed improvement and there was good response to therapy in patients with chronic GVHD.[173,174]

Four case series (n=51, including 10 paediatric patients) received either NB-UVB either as a monotherapy or in

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combination with steroids (9). NB-UVB was effective in a substantial portion of patients (40 complete, 8 partial). A fifth case series (n=7) showed a response ratio of 53.3% for lichenoid skin lesions (3), 32.5% sclerodermoid lesions (2) and 35% mixed (2).[175-179]

NB-UVB not generally used for this condition in the UK.

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with graft-versus-host disease

Mastocytosis

One non-randomised study (n=20) compared NB-UVB with PUVA for mastocytosis (including cutaneous mastocytosis (10) and indolent systemic mastocytosis with cutaneous features (10), mean change in VAS was 5.8 for NB-UVB and 6.1 for PUVA.[180] A case report of indolent systemic mastocytosis also showed improvement in cutaneous maculopapular lesions treated with NB-UVB after 20 sessions.[181]

A case series (n=7) showed reduction in pruritis after NB-UVB treatment, probably due to a reduction of pro-inflammatory cytokines and/or to its action on the membranes and/or enzymes of the mastocytes.[182]

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with mastocytosis

Notalgia paraesthetica

No comparative studies were identified. One small case series (n=5) showed NB-UVB treatment benefited patients by reducing the severity of pruritus.[183]

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with notalgia paraesthetica

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Pityriasis rosea

Indigo naturalis (Qing Dai), a compound containing several traditional Chinese medicines, combined with NB-UVB was shown to more effective and have superior cure rates when compared to both NB-UVB or *Indigo naturalis* monotherapies for pityriasis rosea in a MA which included eight RCTs (n= 688).[184] Adverse effects were similar between the groups. However, the authors commented that publication bias affected the analysis.

Pityriasis rosea is generally a self-limiting disease and would not be normally be treated with phototherapy in the UK.

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with pityriasis rosea

Seborrhoeic dermatitis

No comparative studies were identified. There was one prospective case series (n=18) which concluded NB-UVB phototherapy appeared to be a very effective and safe treatment option for patients with severe seborrhoeic dermatitis.[185]

No recommendation (Θ): There is insufficient evidence to recommend NB-UVB for all people with seborrheic dermatitis

Other dermatological conditions (case report evidence only)

There are many dermatoses for which NB-UVB has been used with reported success in case reports. These include, acne during pregnancy, burn induced leukoderma, cutaneous plasmacytosis, eosinophilic pustular folliculitis, erythema annulare centrifugum, erythema dyschromicum perstans, Hailey-Hailey disease, histiocytosis, ILVEN + psoriasis, impetigo herpetiformis during pregnancy, keratosis lichenoides chronica, lichen amyloidosis/sus, lichen nitidus, lichen sclerosus, Netherton's syndrome, papuloerythroderma, pigmented purpuric dermatosis/ Schanberg's disease, pityriasis rubra pilaris, poikiloderma vasculare atrophicans, primary localized cutaneous amyloidosis, pruritis

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	folliculitis (pregnancy), pruritic papular eruption in HIV, pruritic papular eruption in radiotherapy (with breast cancer), pseudoainhum (with psoriasis), resistant psychogenic excoriation, scleredema of buschke and subcorneal pustular dermatosis. **No recommendation (Θ):** There is insufficient evidence to support any recommendation for NB-UVB for the treatment of acne during pregnancy, burn induced leukoderma, cutaneous plasmacytosis, eosinophilic pustular folliculitis, erythema annulare centrifugum, erythema dyschromicum perstans, Hailey-Hailey disease, histiocytosis, ILVEN + psoriasis, iImpetigo herpetiformis during pregnancy, keratosis lichenoides chronica, lichen amyloidosis/sus, lichen nitidus, lichen sclerosus, Netherton's syndrome, papuloerythroderma, pigmented purpuric dermatosis/ Schanberg's disease, pityriasis rubra pilaris, poikiloderma vasculare atrophicans, primary localized cutaneous amyloidosis, pruritis folliculitis (pregnancy), pruritic papular eruption in HIV, pruritic papular eruption in radiotherapy (with breast cancer), pseudoainhum (with psoriasis), resistant psychogenic excoriation, scleredemae and subcorneal pustular dermatosis. ——————————————————————————————————————— NB-UVB is considered a safe treatment modality. The frequency of adverse events is low, with fewer significant adverse events reported when compared to other first line systemic therapies for the management of psoriasis.[186,187] The most commonly experienced adverse event is erythema, although its reported frequency differs throughout the literature.[158,188-190] Erythema is usually recorded using a semi-quantitative grading system consisting of E0 (no erythema), E1 (barely perceptible asymptomatic), E2 (well defined with mild discomfort), E3 (well defined and painful) to E4 (painful erythema, with bullae). E3 and E4 sun burn type reactions occur infrequently during courses of phototherapy.[190] Following exposure to UVB, erythema develops within 3-5 hours, peaks between 12 and 24 hours and resolves by 72 hours.[191] However, the speed of onset and the delay in offset may vary depending on the intensity of the triggering UV exposure.[192,193] The frequency of erythema also varies according to body site[194,195] and may increase in the presence of photosensitising medication.[196] Minimal Erythema Dose (MED) testing at baseline is therefore advisable in patients on potentially photosensitising drugs in order to guide initial treatment dosing thereby reducing the risk of burning during treatment. However, patient on potentially photosensitising medication may have normal MED but experience increased episodes of symptomatic erythema.[196]

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Provocation of Polymorphic Light Eruption (PLE) may develop during treatment with NB-UVB. This has been reported to occur in as many as 62% of people receiving prophylactic phototherapy.[158] The risk of provoking PLE in the general population is unknown but likely to be less; patients should therefore be counselled about this risk prior to starting treatment, particularly if they give a history of PLE which is prevalent in approximately 20% of white Caucasians.

In the event of flaring dose reduction and cautious escalation helps to lower PLE recurrence and the application of a potent topical steroid to commonly affected sites immediately following each treatment may further reduce the incidence.[197] The provocation of other previously undiagnosed UVB-sensitive photodermatoses, such as chronic actinic dermatitis, occurs less frequently, but when it does occur can be severe. This is not consistently evident from the patietn's history and the presence of reduced MED at baseline should prompt assessment for co-existant photosensitivity prior to treatment.

Reactivation of Herpes Simpex Virus (HSV) and HSV keratitis can occur as a result of NB-UVB treatment.[198,199] In people with a history of HSV infection, the use of prophylactic acyclovir and facial shielding during treatment should be considered.

NB-UVB is considered safe in children, pregnancy and the elderly.[200-202]

Several retrospective reviews have demonstrated the efficacy, tolerability and short term safety of NB-UVB in children,[46,98,203] but long-term safety data is lacking.

Pregnancy - Significant reductions in folic acid levels through photodegradation have been reported following high cumulative NB-UVB doses (118.16 J/cm^2 following 36 sessions of NBUVB in the management of psoriasis).[204] Measurement of folic acid levels either with or without supplementation should be considered in women trying to conceive. For women of child-bearing age receiving prolonged (e.g. >30 treatment) whole-body NB-UVB courses folate supplementation should be considered, and the need for supplementation reinforced for those receiving NBUVB in the first trimester of pregnancy.[200,205]

During pregnancy the use of facial shielding during treatment may help to limit the exacerbation of melasma.

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Pruritus during NB-UVB is commonly reported[158,206] but may arise directly from the underlying disease.[207]

The development of bullae limited to psoriatic plaques with sparing of the surrounded non-lesional skin during NB-UVB therapy is a recognised but uncommon complication of therapy. Histology demonstrates a split at the junctional layer and numerous apoptotic keratinocytes. It is hypothesised by Calvara-Pinton *et a*l. that this occurs during phototherapy due to enhanced penetration of UVB as a result of a reduction in acanthosis and desquamation prior to the protective thickening of the stratum corneum and enhance pigmentation within psoriatic lesions.[208,209]

Idiopathic guttate hypomelanosis-like hypopigmented macules and freckling have been reported to occury in NB-UVB phototherapy, including in people with cutaneous T-cell lymphoma. In both presentations the changes occur in both lesional and non-lesional skin exposed to NB-UVB.[210-212]

Exposure of the eye to UVB can also result in acute and chronic photodamage.[213] Photokeratitis[214] and photoconjunctivitis[215] may occur acutely, whilst chronic exposure is linked to the development of pterygium and cataract formation.[216] For this reason the use of UV protective goggles are recommended during treatment with NB-UVB. In those with eyelid dermatoses, NB-UVB phototherapy can be safely used with the eyelid closed providing closure is complete and patients are compliant.[217] For any patient in whom that is not possible, the use of UV protective contact lenses can be considered. Soft lens are considered preferable to gas permeable lens as they provide superior coverage,[218] and coverage of the limbus by the lens is important to prevent the unintended passage UV into the eye.[219]

Exposure of the skin to UVB is recognised to induce photoaging through the production of DNA damage and oxidative stress,[220] and the subsequent reduction in collagen production and increased activity of matrix metalloproteases.[221,222] Clinically this presents as course wrinkling, cutaneous atrophy and leathery skin.[223]

Photocarcinogenesis, the potential risk of skin cancer with PUVA is well established with evidence from both the European and American literature, but the risks with NB-UVB are less clear. Mouse studies indicated that NB-UVB may have a 2 times higher risk of inducing skin cancer compared to BB-UVB per MED,[224-227] however in clinical practice, the number of MEDs required for a NB-UVB treatment course is usually less than a third than that required

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for BB-UVB, resulting in the overall skin cancer risk probably being lower than that of BB-UVB.[228] This is born out in clinical studies, with a SR unable to identify an increased risk of skin cancer following NB-UVB.[229] However, the latter only identified 4 studies specifically focusing on NB-UVB induced skin cancer risk with follow-up periods of up to 22 years from first treatment (mean/median follow-up between 4 and 5.6 years) with 1 study identifying an increased risk of BCC only compared to the untreated population[230] but patients numbers affected were small with only 10 of 1908 patients. One further prospective study of 445 patients with a mean follow up of 34 months also did not identify, an increased risk with NB-UVB compared to control.[231]

The risk of genital tumours in men exposed to PUVA and BB-UVB has been quantified, with approximately 16.3 and 4.6 times higher incidence than in the general population respectively.[232] No evidence exists separately for NB-UVB inducing genital tumours but it is prudent to cover male genitalia during treatment. There is no standard material used for shielding genitalia but studies of UV transmittance suggest that darker coloured materials such as polyester (close weave type and high thread count offer better protection)[233] A commonly used example of a material offering relatively good protection would be a sock, whereas materials such as surgical masks are less effective.

An average treatment course for patients with inflammatory dermatoses is typically 24-30 treatments. However, people with vitiligo will have prolonged courses . There is only limited evidence to support the long term safety of high cumulative exposures of NB-UVB in people with vitiligo with darker skin types, although a retrospective study of people with vitiligo with skin type IV-VI receiving between 200 to 600 treatments with a mean follow up of 83.5 months did not detect any skin cancers.[234]

Large prospective studies with long-term follow up are required to get a better understanding of skin cancer risk in patients, and further understanding of the long-term impact of total cumulative dose, frequency of treatment, doses given and patients skin type.

The NICE-accredited BAD Service Guidance and Standards for Phototherapy Units 2016 currently recommends greater than 500 UVB exposures as thresholds to trigger consideration of skin cancer screening review.[89] It may be appropriate to treat past these arbitrary threshold numbers after clinical assessment and discussion with the individual patient on the risks and benefits of the various treatment options.

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Recommendation (GPP): Explain the potential benefits and harms of NB-UVB and provide a patient information leaflet (e.g. https://www.skinhealthinfo.org.uk/a-z-conditions-treatments/) to candidates to choosing the treatment.

Recommendation (GPP): Continue regular use of an emollient during a course of NB-UVB to prevent and alleviate skin dryness and pruritus.

Recommendation (GPP): Offer skin cancer surveillance at appropriate intervals to people identified as having received more than 500 whole-body NB-UVB treatments, particularly to those individuals with other co-existing risk factors for skin cancer.

Future Research Recommendation: Large, prospective studies with long-term follow-up of people treated with NB-UVB to establish skin cancer risk correlated with cumulative number, dose, frequency of exposures, age and skin type.

Future Research Recommendation: Further research into patient and disease characteristics influencing therapeutic response to NB-UVB.

Quality of evidence

The quality of the evidence for each outcome was assessed using the GRADE criteria. The following summarizes the overall quality of evidence for various outcomes considered. For details of reasons for downgrading the quality of the evidence please refer to the relevant GRADE evidence profiles (Appendix D).

Systematic reviews		
See Appendix S		
Comparative studies		
High		None
Moderate	Psoriasis	NB-UVB + cognitive-behavioural therapy compared to NB-UVB
	Vitiligo	NB-UVB + CO_2 laser compared to PRP injection monotherapy
		NB-UVB + piperine compared to NB-UVB + placebo
		NB-UVB + cultured autologous melanocyte transplantation + NB-UVB compared to NB-UVB + cultured autologous melanocyte transplantation

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			NB-UVB + cultured autologous melanocyte transplantation + NB-UVB compared to cultured autologous melanocyte transplantation + NB-UVB
			NB-UVB + cultured autologous melanocyte transplantation + NB-UVB compared to cultured autologous melanocyte transplantation monotherapy
			Combination NB-UVB + fractional CO_2 laser compared to combination platelet-rich plasma injection monotherapy + fractional CO_2 laser
			Combination NB-UVB + piperine (herbal extract derived from black pepper) compared to NB-UVB + placebo
			NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after compared to NB-UVB before + cultured autologous melanocyte transplantation
			NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after compared to cultured autologous melanocyte transplantation + NB-UVB after
		Steroid-dependent antihistamine-refractory chronic spontaneous urticaria	NB-UVB compared to PUVA
		Chronic spontaneous urticaria	NB-UVB compared to PUVA
			Combination NB-UVB + antihistamine (levocetirizine) compared to antihistamine monotherapy
	Low	Psoriasis	NB-UVB compared to PUVA
			Combination NB-UVB + isotretinoin compared to NB-UVB + placebo
			Combination NB-UVB + MTX compared to NB-UVB monotherapy
			Combination NB-UVB + MTX compared to MTX

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	Vitiligo	NB-UVB (BioSkin®) compared to betamethasone dipropionate
		NB-UVB (BioSkin®) compared to L-phenylalanine cream
		NB-UVB compared to oral minocycline
		NB-UVB (hand-held) compared to placebo (hand-held)
		NB-UVB (hand-held) compared to mometasone furoate
		Combination NB-UVB (BioSkin®) + betamethasone dipropionate compared to BioSkin® monotherapy
		Combination NB-UVB (BioSkin®) + calcipotriol ointment compared to BioSkin® monotherapy
		Combination NB-UVB (BioSkin®) + tacrolimus compared to BioSkin®
		Combination NB-UVB (BioSkin®) + betamethasone dipropionate compared to betamethasone dipropionate monotherapy
		Combination NB-UVB (hand-held) + mometasone furoate compared to mometasone furoate + dummy hand-held
		Combination NB-UVB + afamelanotide compared to NB-UVB
		NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after compared to cultured autologous melanocyte transplantation
	Hand & foot dermatoses	Combination NB-UVB + MTX compared to MTX monotherapy
		Combination NB-UVB + MTX compared to combination halobetasol propionate ointment + MTX
	Lichen planus	NB-UVB compared to systemic corticosteroids (prednisolon)
	Subacute prurigo	NB-UVB compared to MD-UVA1
		NB-UVB compared to bath PUVA
	Pruritus	NB-UVB compared to topical liquid paraffin and oral cetirizine (control)
		Combination NB-UVB + UVA compared to NB-UVB

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Very low	Psoriasis	NB-UVB compared to UVA1
		NB-UVB compared to MTX
		NB-UVB compared to adalimumab
		NB-UVB compared to etanercept
		NB-UVB compared to ustekinumab
		Combination NB-UVB + calcipotriol compared to combination NB-UVB + maxacalcitol
		Combination NB-UVB + etanercept compared to etanercept monotherapy
		NB-UVB + fumaric acid esters (FAE) compared to FAE
	Vitiligo	NB-UVB (BioSkin®) compared to calcipotriol ointment
		NB-UVB (BioSkin®) compared to pimecrolimus
		NB-UVB (BioSkin®) compared to tacrolimus
		Combination NB-UVB (BioSkin®) + L-phenylalanine cream compared to BioSkin® monotherapy
		Combination NB-UVB (BioSkin®) + pimecrolimus compared to BioSkin® monotherapy
		Combination NB-UVB (BioSkin®) + calcipotriol ointment compared to calcipotriol ointment monotherapy
		Combination NB-UVB (BioSkin®) + L-phenylalanine cream compared to L-phenylalanine cream monotherapy
		Combination NB-UVB (BioSkin®) + pimecrolimus compared to pimecrolimus monotherapy
		Combination NB-UVB (BioSkin®) + tacrolimus compared to tacrolimus monotherapy
		Combination NB-UVB (BioSkin®) + novel topical in a gel formation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta ®) compared to NB-UVB (BioSkin®) monotherapy

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		Combination NB-UVB (BioSkin®) + novel topical in a gel formation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta ®) compared to Re-Pigmenta® monotherapy
		Combination NB-UVB (BioSkin®) + novel topical in a gel formation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta ®) compared to clobetasol propionate 0.05% ointment monotherapy
		Combination NB-UVB (hand-held) + mometasone furoate compared to NB-UVB (hand-held) + placebo cream
		Combination NB-UVB + oral Janus kinase inhibitor (tofacitinib citrate) compared to NB-UVB monotherapy
		Combination NB-UVB + fractional CO_2 laser compared to fractional CO_2 laser monotherapy
		Combination NB-UVB + fractional CO_2 laser compared to platelet-rich plasma injection monotherapy
		Combination NB-UVB + betamethasone injection + ALA compared to NB-UVB + betamethasone injection + placebo
	Eczema	NB-UVB compared to control (unexposed)
		Combination NB-UVB + UVA compared to NB-UVB monotherapy
	Hand & foot dermatoses	NB-UVB compared to immersion PUVA
		NB-UVB compared to PUVA
		Combination NB-UVB + MTX compared to NB-UVB monotherapy
		Combination NB-UVB + MTX compared to combination salicylic acid 6% ointment + MTX
		Combination NB-UVB + MTX compared to combination topical tacrolimus 0.1% ointment + MTX
		Combination NB-UVB + MTX compared to combination topical tazarotene 0.1%

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		ointment + MTX
		Combination NB-UVB + MTX compared to combination crude coal tar ointment + MTX
	Lichen planus	Combination NB-UVB + topical steroids compared to NB-UVB monotherapy
	Graft vs host disease	NB-UVB compared to PUVA
	Progressive macular hypomelanosis	NB-UVB compared to PUVA
		Combination NB-UVB + daily topical clindamycin 1% and benzoyl peroxide 5% compared to NB-UVB monotherapy
	Mastocytosis	NB-UVB compared to PUVA
	Mycosis fungoides	NB-UVB compared to PUVA
	Pityriasis lichenoides	NB-UVB compared to PUVA
	Pruritus	NB-UVB compared to control (UVA)
	Severe polymorphic light eruption	NB-UVB compared to PUVA
NB-UVB non-comparative studies		
Very low	Acne during pregnancy Burn induced leukoderma Cutaneous plasmacytosis Eosinophilic pustular folliculitis Erythema annulare centrifugum Erythema dyschromicum perstans Hailey-Hailey disease	

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	Histiocytosis ILVEN + psoriasis Impetigo herpetiformis during pregnancy Keratosis lichenoides chronica Lichen amyloidosis Lichen nitidus Lichen sclerosus Netherton's syndrome Papuloerythroderma Pigmented purpuric dermatosis/Schamberg's disease Pityriasis rubra pilaris Poikiloderma vasculare atrophicans Primary localized cutaneous amyloidosis Pruritis folliculitis of pregnancy Pruritic papular eruption in HIV Pruritic papular eruption in radiotherapy (with breast cancer) Pseudoainhum (with psoriasis) Resistant psychogenic excoriation Scleredema of buschke Subcorneal pustular dermatosis.
Patient values and preferences	The BAD works with patients on all its guidelines and encourages patients to share their experiences of a particular treatment, condition or treatment approach. The viewpoints below are shared either from the perspectives of an individual patient with a particular condition, or from a group of patients as represented by a patient support charity for a particular condition. **Access** *Psoriasis* In my personal case I have, after over 25 years of being a psoriasis patient in various parts of the country, found gaining a referral from my GP to a dermatologist to be relatively straightforward.

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The key issue for me as a patient has been that once referred, I have found there are marked differences in the range of NB-UVB provision according to the Trust involved.

UVB treatment centres are few, so travel times can be significant. In rural areas, a car, in my experience, is essential as public transport can be patchy. Also, some treatment centres are often in difficult-to-access locations, unless based in a hospital environment.

In my case at various times in the last 25 years, it has been impossible to juggle work with treatment commitments whist working full time. During periods of significant flares, it has been necessary to take some weeks of sick leave until the psoriasis is back under control. My GPs have always been very understanding in giving me this time to get the disease under control, but I'm not sure if that is always the case. As the disease is "hidden" it can sometimes be a challenge for psoriasis patients to articulate the struggle of dealing with a significant flare.

Vitiligo

In general, members of the Vitiligo Support UK (a charitable organisation) report that they are able to get their GP to refer them to secondary care, with the dermatologist then referring them for phototherapy treatment.

However, a smaller group of members report that they had had to push their GP for a referral, and this probably reflects a picture where Clinical Commissioning Groups nationwide have different policies in place in relation to the treatment of vitiligo, whether with phototherapy in secondary care, or at all.

An equal number of members reported that they were refused access entirely to a consultant dermatologist, and thereby failed to get an onward referral for phototherapy.

Once referred to a phototherapy unit, vitiligo patients reported that they generally found appointments convenient and easy to attend. However, some parents in particular were concerned about the impact of appointments on their children's lives (not just the child receiving treatment, but also their siblings), commenting that it took a long time both to get to the unit/hospital, in particular if you were reliant on public transport and if you were driving yourself you would have to spend time finding a parking space, for relatively short appointment times.

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Members reported being given a range of reasons for not getting a referral for phototherapy. These included:

- the vitiligo patch was 'too small to treat'
- the patch was on someone with a pale skin at the outset
- the patch was on skin where the member had a number of freckles which they were told would increase with treatment
- the member was told that they had had vitiligo for over a year and so it wasn't worth treating
- the member was the parent of a child with vitiligo and the fact they were a child was the reason they'd not got access to treatment
- the member was told their vitiligo wasn't stable enough to treat

The inconvenience of appointments or being refused treatment meant that some members had gone online and purchased their own 'at home' hand-held units. Members reported success on smaller patches with the hand-held unit, particularly on facial vitiligo.

There was a real demand expressed by members for accurate guidance on using the hand-held devices; for example, questions were asked about how many treatments you could use before putting your skin at risk of skin cancer, whether you could use the device around the area of the eye and whether you needed to take any additional protective steps if using the device on a child.

Eczema

I was easily referred to a phototherapy centre in the same city in which I went to school, therefore cutting down my travel time. Previously, it was more difficult having to leave school early to make it to the latest clinic appointment. With the change in centres, I was able to travel less in order to receive treatment.

Outcomes

Psoriasis

Patients need to have their expectations managed with respect to NB-UVB treatment, particularly regarding the safe,

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	lifetime number of sessions, likely period of clearance (i.e. months), etc. There needs to be a diarised follow-up in clinic with a dermatologist following treatment sessions, to assess level of success. In my experience, that does not always happen. As always, patients need to be informed of what alternatives there are to NB-UVB in cases where the patient is not suitable for the treatment in the first place, or when the treatment is deemed no longer effective. *Vitiligo* Members of the charity recognised that phototherapy remained the treatment with the best success rate in re-pigmenting their vitiligo, compared with using topical monotherapies, however they also reported that there was a low rate of success in treating *their* vitiligo with phototherapy. Most members were aware that, even if you got some re-pigmentation, the chances of your vitiligo returning were very high. A few members reported that they had achieved between 25% and 50% re-pigmentation for the area treated. Some members reported that they had achieved under 25% re-pigmentation from the treatment. Nobody had achieved over 75% re-pigmentation with NB-UVB phototherapy, which is reflected in the research results reported here. *Eczema* Patients should have some understanding of managing their condition alongside NB-UVB treatment and be aware that contact with specialist nurses allows for better management of their condition. Patients should be informed of alternative treatments that are available and be aware that a combination of treatments including NB-UVB might be a viable option.

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Experiences

Psoriasis

NB-UVB worked extremely well for me in the first instance and I had roughly a 75% clear-up, which lasted for 9-12 months. The second treatment was less effective and after the third, some 1-2 years later, I was deemed to no longer be suitable for this type of treatment and was escalated the treatment ladder to biologic therapy.

However, the NB-UVB treatment is straightforward and notwithstanding my comments about access above, quick to deliver and much less messy than many other treatment options. At a time in the early 2000s, when I was suffering a very lengthy flare in my psoriasis, NB-UVB helped enormously.

Vitiligo

Members' comments on their experience of dermatology and NB-UVB showed that many people thought that there had not been an adequate discussion of phototherapy as an option for them and that they wanted more information on alternatives, including use of hand-held NB-UVB devices at home.

Members recognised that a course of NB-UVB was a long-haul commitment and that the patches of vitiligo could become worse in the short term, but the overall message from members was to stick with it. They also recommend finding a community of support for the process.

Members noted that in early stages of NB-UVB treatment hyperpigmentation of normal skin could happen making your vitiligo more noticeable. This hyperpigmentation did fade as a tan would, but some people recommended covering, for example, the eye area as they felt that the vitiligo patches were easier to cover up than the hyperpigmented areas of skin.

NB-UVB does represent, in members' opinion, a considerable time commitment and may be impracticable due to a patient's geographic location in relation to the nearest centre for treatment or if the patient has other medical issues which means they or their parents already have to juggle other regular appointments. Also, parents highlighted problems with arranging childcare for siblings. These were some of the reasons that patients were interested in the use of or were already using home-based hand-held NB-UVB units. However, everything has been skewed by

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	Covid-19 restrictions. The use of hand-held devices amongst members has increased exponentially and there is a real need for hand-held device guidance with a lot of questions arising about use e.g. treating the eye area safely at home. <u>*Eczema*</u> In the past, I have found it difficult to attend treatments, especially when I have had unexpected and significant flare-ups, leaving NB-UVB unsuitable until the eczema had calmed down. NB-UVB has worked tremendously well for me in the past, with my first course of treatment having cleared up active eczema by about 50%, which lasted for 3-4 months; the second treatment bore similar results. My most recent course of NB-UVB was supplemented with monitored topical steroid use, and from this my skin has healed nearly entirely. The effects of the treatment have lasted for 6 months, with no significant flares. I have only a few small patches of eczema remaining. My lichenified skin has returned to its original colouring and softness, and I no longer have large patches of inflammation. My skin condition has become manageable and the itch has subsided.

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Cost	There are a number of studies looking at cost-effectiveness of phototherapy for psoriasis compared to various other treatment modalities. In the UK Boswell *et al*. have established NB-UVB treatment for psoriasis is highly economical and causes significant savings in cost for topical treatments.[235] A Malyasian study found the cost effectiveness hierarchy to be topical treatments plus systemic treatments > topical treatments plus phototherapy > topical treatments plus biologics.[236] There is good evidence that home phototherapy is a cost-effective treatment for psoriasis, with limited data for other conditions. One retrospective cost-effectiveness study has shown home UVB to be more cost-effective for patients with moderate-to-severe psoriasis compared to biologic treatment; The direct costs required to achieve PASI-75 were €8256 per patient for biologics and €903 per patient for home-based phototherapy respectively. The costs associated with effective treatment using biologic drugs in a single patient would provide effective home-based phototherapy for 9.1 patients.[237] An economic evaluation of a RCT (PLUTO study) of 196 patients for home phototherapy for psoriasis patients compared to hospital phototherapy found the average total costs by one year after the end of phototherapy were €1272 and €1148 respectively (difference €124, 95% CI €−155 to €403).The differences were not significant and must be considered in the context of home phototherapy being at least as clinically effective and having higher patient satisfaction. The health effects as measured in QALYs did not differ significantly between the two groups and remained far below €20 000 per QALY, making home UVB treatment a cost-effective intervention. This study only accounted for direct costs. It they had incorporated costs of absence at work, the costs of outpatient phototherapy would increase more than the costs of home phototherapy, making home phototherapy the cheaper option.[238] Finally, 298 courses of home NB-UVB phototherapy were undertaken by 212 patients between 1998 and 2011. The main diagnoses treated were psoriasis (72%), atopic dermatitis (8%), and prophylactic phototherapy (7%). The estimated costs to the hospital ranged from £229 to £314 per course (£307 to £422 per effective course for psoriasis), compared with £114 for out-patient therapy (£149 per effective course for psoriasis). The total cost to society (hospital and patient costs) is around £410 per course, compared to an estimated £550 for outpatient therapy for this group of patients. Treatment was well tolerated, erythema rates were similar to outpatient therapy, there were no complaints and the vast majority would choose home over outpatient phototherapy if required in the future.[239]

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	There is limited study evidence for other conditions. In mycosis fungoides (stage 1A), there is one comparative study from the USA. Lifetime costs were calculated by accounting for medications, office visits, laboratory monitoring, related procedures, work absences, and travel. NB-UVB was found to me more cost-effective than PUVA, topical corticosteroids, topical nitrogen mustard, and topical bexarotene, but less cost-effective than local radiation.[240] In severe atopic dermatitis, there is Finnish study that conducts an economic evaluation of intermittent cyclosporine A versus NB-UVB. They were both comparable in terms of total cost, but NB-UVB was found to be significantly less costly in terms of treatment and health utilisations costs.[241]

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Other considerations	**<u>Contraindications</u>** There are a number of absolute contraindications to the use of NB-UVB phototherapy. These include: • Photogenodermatoses (Xeroderma Pigmentosum, Cockayne syndrome, Trichothiodystrophy, Blooms syndrome and Rothmund Thomson syndrome) • Disorders with a genetic predisposition to skin cancers (Gorlin syndrome and albinism) • Concomitant oral immunosuppressive medication in particular ciclosporin, azathioprine, mycofenolate mofetil and tacrolimus. However, following careful consideration of the risk/benefit ratio, NB-UVB could be used in some people taking specific immunosuppressive medication such as methotrexare or biological therapies • People medically unfit and unable to safely stand in the whole body NB-UVB cubicle (for example those with severe cardiovascular or respiratory disease, and those with poorly controlled epilepsy) Relative contraindications: • Hereditary dysplastic naevus syndrome • Lupus erythematosus • Previous exposure to arsenic or ionizing radiation • Past excessive exposure to natural sunlight, sunbeds or phototherapy • Previous oral immunosuppressive medication in the form of ciclosporin, azathioprine, mycofenolate mofetil and tacrolimus • Current premalignant skin lesions • Current and past history of non-melanoma skin cancer[λ] • Current and past history of melanoma skin cancer[λ] • Strong family history of skin cancer (melanoma or non-melanoma) at a young age [λ]NB-UVB phototherapy should generally be avoided in patient with a past personal history of melanoma or with a current melanoma or non-melanoma skin cancer, however, cases should be assessed on an individual basis and NB-UVB could be considered in those individuals where therapeutic options are limited and the benefit of the treatment outweighs the potential risks. NB-UVB phototherapy can be given with caution to people with dermatoses which may be photoaggravated such as

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dermatomyostis, Darier's disease and transient acantholytic dermatoses, pityriasis rubra pilaris and active herpes herpes simplex or photoaggravated eczema. It can be used in people taking potentially photosensitising medications as long as a MED test is performed before treatment is started and patients made aware of increased risk of symptomatic erythema if MED is not reduced.[196]

NB-UVB phototherapy can also be given as prophylactic phototherapy to patients with photodermatoses such as polymorphic light eruption, solar urticaria, chronic actinic dermatitis and erythropoietic protoporphyria.

NB-UVB phototherapy is not contraindicated in childhood, pregnancy or breastfeeding. In addition, there are no risks of treating patients with pacemakers *in situ*.

Recommendation (↓↓): Do not offer NB-UVB phototherapy to people who are taking ciclosporin, mycophenolate, azathioprine and tacrolimus (see contraindications) for their skin disease or other conditions as combiniation or rescue therapy to control flares.

Protocols for treatment delivery

Phototherapy protocol variables include initial dose, frequency of treatment, incremental regimen, maximum dose, number of exposures, and potentially a "tailing off" period of treatment. There is a lack of good quality study evidence to guide decision making for many of these variables. Studies in people with psoriasis predominantly with skin phototype 1 and 2 support the need for a small area test dose, principally for safety reasons.[242] Routine mininimal erythema dose testing as advised by the BAD phototherapy service standards will allow identification of people with photosensitivity induced by medication or previously unrecognised photodermatoses such as chronic actinic dermatitis prior to treatment. This will help prevent sensitive people from burning during treatment and identify if people require further phototesting.[243,244]

For people with psoriasis, the use of 20% increments has been shown to be only slightly less effective than 40% increments but importantly was associated with fewer episodes of symptomatic erythema.[245] Treatment 3x weekly is not significantly less effective than 5x weekly and associated with less symptomatic erythema reactions[246] while treatment 2x weekly is as effective 3x weekly but the duration of treatment is more prolonged.[54] A study from Turkey

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showed that, for psoriasis, maintenance NB-UVB did not result in better outcome.[247]

There is limited study evidence for specific protocols to treat other conditions. In atopic eczema, a comparative study demonstrated a low increment regimen can work as well as higher increments.[248]

Examples of commonly used protocols in the UK are available at via https://www.photonet.scot.nhs.uk/wp-content/uploads/2018/11/2018-10-15-Treatment-Protocols-final.pdf.

It is important that protocols are used as a guide, as deviation from protocols will be necessary for optimum results for many individual patients. This is particularly the case for conditions other than psoriasis and this will vary according to the clinician's individual expertise in treating particular conditions. Whether or not a protocol is strictly followed or not will vary according individual expertise in treating particular conditions.

The BAD phototherapy service standards state there are no limits to the numbers of treatments patients may have.[89] However, the figure of 500 NB-UVB exposures is a threshold to trigger a skin cancer screening review. There will be patients in whom it is clinically appropriate to continue to treat beyond these numbers. Decision about whether or not to continue to treat past this arbitrary threshold number is the responsibility of the Dermatology Consultant who needs to assess the relative risks and benefits of the various treatment options for each patient.

Recommendation (↑↑): Carry out minimal erythema dose (MED) testing or small test area before starting treatment to ascertain a safe starting dose of NB-UVB .

Recommendation (GPP): All centres should have a phototherapy protocol in place for treatment and to address episodes of symptomatic erythema and other adverse effects.

Recommendation (GPP): Offer skin cancer surveillance at appropriate intevals to people identified as having received more than 500 whole body NB-UVB treatments, particularly to those individuals with other co-existing risk factors for skin cancer.

Safety and Governance

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Skin sun burn type reactions secondary to phototherapy is an important cause of litigation and as such clinical governance and safety is of paramount importance.[249,250] In England (2016-2021), there were 25 episodes of litigation related to definite or likely burning from phototherapy out of 327 cases (personal communications Nick Levell GIRFT Dermatology lead).

Hospital based NB-UVB should be administered by trained phototherapist, who will either be a 1st level registered nurse or a physiotherapist registered with the HCPC. All staff administering UVB are required to undertake an initial period of supervised training and to be signed off as competent for all relevant areas at the end of this period. All staff should continue to receive annual education, an annual appraisal and attend a recognised phototherapy update/course every 3 years. Further guidance can be found in the Service Guidance and Standards for Phototherapy Units document [www.bad.org.uk/shared/get-file.ashx?itemtype=document&id=5959].

Patients should be given an education session prior to treatment and should be provided with written patient information leaflets prior to starting their treatment. Educational sessions are typically nurse-led and have been shown to be as effective if provided as a patient specific e-learning session, with the latter showing improved consistency.[251] Patients should sign a consent form to indicate their understanding of the risks of treatment and safety procedures required during treatment such as keeping goggles on, and wearing the same clothing during the sessions where relevant.

Accurate, clear and timely documentation of any patient examination, routine treatment checks, doses given and any side effects observed must be made at each patient visit.

For home phototherapy, careful patient selection is required. Training and ongoing remote supervision and support during the course of treatment by a trained and experienced phototherapist is essential along with the use of standardised treatment protocols, documentation and appropriate governance framework.[239,252-255]

Unintentional UVB exposure to staff and public should be limited by measures such as curtains around cabinets to control UV scatter from walls and ceilings, and an assessment of environmental scatter should be made in line with the Control of Optical Radiation at Work Regulations 2010.[256] Safety of the cabinets, their outputs and local

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environment is covered separately in the 2015 BAD guidelines on the measurement of ultraviolet radiation levels in ultraviolet phototherapy.[257]

Interactions with systemic medication

MED testing prior to NB-UVB should allow any interaction of systemic medication and UVB to be accounted for, thereby reducing the risk of burning during treatment. However, patient on potentially photosensitising medication may have normal MED but may experience increased episodes of symptomatic erythema.[196]

Safety in patients with photodermatoses

In patients with photodermatoses such as polymorphic light eruption (PLE), there is a risk of inducing the photodermatosis, especially if the dose is too high. Patients should therefore be counselled about this risk prior to starting treatment.

Improving access

Convenience and availability of phototherapy remains an issue and any approach that facilitates patient access to effective, safe treatment should be a priority. This has been highlighted during the Covid-19 pandemic with restrictions to access or cessation of phototherapy services in hospitals, although they are now reopening (https://www.bad.org.uk/shared/get-file.ashx?itemtype=document&id=6690). One option for improving access is the delivery of home treatment. However, this remains available in only limited settings and there continues to be a lack of clinical confidence in this important treatment option.[253,258]

The principles of efficacy and convenience of home UVB phototherapy were shown in early studies.[259,260] In one early study in Tayside, home UVB phototherapy was delivered using Waldmann UV100 devices in two phases. In the first phase, UVB phototherapy using home cabinets was used in the hospital setting and 7 of 10 patients completed treatment and achieved minimal residual activity or clearance of their psoriasis in a median of 18 treatments. In a subsequent phase of study, 32 NB-UVB treatment courses in 30 patients were delivered, 23 of whom had psoriasis, with 18 achieving minimal residual activity or clearance in a median of 22.5 treatments. Whilst self-reported erythema rates were higher in the home treated group than expected in the hospital setting, all patients expressed a preference for home-based treatment, which showed similar efficacy to historical hospital-based phototherapy

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	outcomes. Thus, this highlighted home UVB phototherapy as an important and useful means of improving availability of phototherapy for patients.[252] The service has continued to provide effective and safe treatment for patients and careful patient selection and hospital oversight and supervision are key.[261] The same group went on to review the UK home phototherapy service in Tayside by analysis of the phototherapy database between 1998 and 2011 and by the use of patient questionnaires and outcome data, cost analyses and comparisons with hospital-based treatment. 298 courses of NB-UVB home phototherapy were evaluated in 212 patients with the main diagnoses of psoriasis, atopic eczema and for prophylactic phototherapy in patients with photodermatoses. 74.5% of patients with psoriasis achieved clearance or minimal residual activity in a median of 30 exposures. Whilst the estimated costs to the hospital ranged from £229 - £314 per treatment course, which equates to £307 - £422 pounds per effective treatment course for psoriasis compared with £114 (£149 for effective course for psoriasis) for outpatient therapy, the total cost to society, which included hospital and patient costs was around £410 per course for home phototherapy compared to an estimated £550 for hospital-based phototherapy. Notably, treatment was well tolerated with similar erythema rates to the hospital-treated group, and the majority of patients expressed a preference for home treatment compared with hospital-based phototherapy.[239] In a pragmatic, multicentre, randomised, controlled, non-inferiority study (PLUTO), comparing home versus outpatient UVB phototherapy for mild to severe psoriasis in the Netherlands, of 196 eligible patients, 105 consecutive patients were followed up for one year after therapy. UVB home phototherapy was undertaken using the Waldmann UV 100 TL-01 source, and training was undertaken prior to self-delivery of treatment which took place 3 or 4 times per week. Contact with nursing staff was available and the irradiation schedules for both home and hospital-based phototherapy were undertaken as per pragmatic practice and were not modified for the purposes of the trial. The main outcome measure of effectiveness was measured by the proportion of patients with 50% or more reduction in baseline psoriasis severity score (PASI) or self-administered psoriasis area and severity index (SAPASI). An additional measure of effectiveness which was determined was the PASI/SAPASI 75 and PASI/SAPASI 90. Secondary outcomes of quality of life, burden of treatment assessed by questionnaire, patient preference and satisfaction and short-term side effects were also recorded. The authors found that 82% of patients treated at home compared with 79% of patients treated in the outpatient setting reached SAPASI 50, and 70% compared with 73% reached PASI 50. For patients treated at home there was a mean SAPASI score reduction of 82% and median PASI score decrease of 74% compared with 79% and 77% for the patients treated in the outpatient setting. Treatment was

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effective with no significant difference between outpatient or home treatment. There were no significant differences in adverse effects and there was greater patient satisfaction for home phototherapy and reduced burden of disease as assessed by the patient. Thus, this robust clinical trial supported the earlier clinical data showing home-based NB-UVB phototherapy to be effective, safe and convenient.[53] These studies relate to short-term courses of NB-UVB phototherapy. There would be some concern about the use of continuous or maintenance therapy, despite patients expressing a view that they would wish to continue or to repeat treatment courses if available.[262] Health economic analysis undertaken in the PLUTO study showed that, whilst costs for home phototherapy were slightly higher than for outpatient phototherapy, there was no difference in quality adjusted life years, as an indicator of health effects.[238] Furthermore, home phototherapy is considerably less costly than the biologics.[255,263,264] Thus, there is good evidence to support the availability of home UVB phototherapy, with proven efficacy, compliance and patient satisfaction.[255]

Home-based phototherapy may also be considered for patients with vitiligo, although as with hospital-based phototherapy, lengthy treatment courses are often required.[265,266] Home phototherapy can either be undertaken using whole body units or handheld or non-handheld devices for localised areas such as scalp or hands and feet.

Handheld units may be appropriate for localised disease,[267-270] and these may be an important addition, although particularly given the potential need for lengthy treatment courses, oversight and supervision is essential. Certainly, patient willingness to undertake home treatment and the necessary training package and treatment protocol are required.[87] A RCT of home interventions for the treatment of vitiligo (HI-Light Vitiligo Trial) found that combination treatment with home-based hand-held NB-UVB and potent topical corticosteroid was likely to be superior to potent topical corticosteroid monotherapy in the treatment of localised vitiligo.[271] Combination treatment was relatively safe and well tolerated, however, it was only successful in about 25% of cases. Retention of the participants was a problem, with 70% providing primary outcome at 9 months and less than 50% providing secondary outcome at 21 months. There was also a high risk of loss of response when combination NB-UVB or potent topical corticosteroid is discontinued.

Zhang and colleagues investigated the efficacy and safety of home NB-UVB for non-segmental vitiligo in a prospective cohort study in 94 subjects compared with hospital-based NB-UVB phototherapy over a 6-month treatment period.[272] The study was allocated as opposed to randomised, based on convenience for patients, and therefore some bias was introduced and assessments were unblinded. However, there was no significant difference

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in repigmentation rates between the home-based and hospital-based phototherapy regimes, and only minimal adverse effects and similar health related quality of life scores.[272] This again highlights that home-phototherapy can be a convenient and utilised therapy for vitiligo, which is relatively under explored.[273] Home UVB phototherapy may also be effective for scalp psoriasis, although may be no more effective than topical therapies.[274]

One of the perceived concerns regarding home-phototherapy is that there are treatment variables, such as the units used, training oversight and assistance for patients. Patient selection and supervision by staff with phototherapy experience, along with use of standardised treatment protocols and appropriate governance, is required for effective safe home phototherapy.[239,252-255] Recent experience of setting up a new service has been reported[275] and a useful model for setting up a home phototherapy service is described by Hung *et al.*[255]

The need for home phototherapy may arise due to geographical requirements or indeed for other lifestyle issues such as working patterns or family commitments. An alternative way to improve convenience and access to phototherapy services for patients is also to enable the patient to self-administer their own treatment in the hospital setting. In a pilot study in 20 patients with psoriasis (n=15) and eczema (n=5), patients underwent a training programme over 2 days which was comparable to the home phototherapy training programme and included undertaking a MED test as a safety measure and then also having a supervised treatment undertaken prior to commencing self-administration of further phototherapy.[276] This was undertaken in the hospital phototherapy unit and feedback was ascertained from both staff and patients by questionnaire. Data are available for 18 of the 20 patients and the mean number of exposures was 25 (range 3-45), with a mean cumulative exposure dose of 16 J/cm^2. There were no unexpected adverse effects and the results were similar to those of a sample group of outpatients who had standard nurse-administered UVB phototherapy where the mean number of exposures was 24 and the mean cumulative dose was 17 J/cm^2. Thirteen of the patients completed the questionnaires and all concluded that the training programme sufficiently prepared them for self-administering phototherapy and 12 reported they would be happy to undertake this again. Thus, this pilot study indicates that, for selected patients, taking more responsibility and ownership of treatment by self-administering their own UVB phototherapy in a hospital setting, is safe and effective and enables them to take greater control of attendance times for UVB phototherapy, such as in an evening if they are late finishing work.

Whilst the effectiveness of UVB phototherapy is well validated and there is now increasing evidence for the cost

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	efficacy of UVB phototherapy, there remains a requirement for provision of greater access and availability of phototherapy services for patients who may otherwise not be able to attend the hospital for regular treatments.[262,277,278] This highlights the importance of enabling phototherapy services to be delivered as efficiently and conveniently as possible for patients and looking at ways in which to improve options for patient care. **Recommendation (GPP**): All phototherapy devices (including hand-held devices) should be evaluated, and safety checked by medical physics and irradiance measurements carried out at regular intervals suitable for the frequency of use. **Recommendation (GPP):** All phototherapy centres should consider providing a home phototherapy service.

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Appendix D: GRADE evidence tables

CI: Confidence interval; **RR:** Risk ratio; **MD:** Mean difference

D.1 Psoriasis

NB-UVB compared to PUVA for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: PASI 75 (3 months)												
2	randomised trials	serious [a]	not serious [b]	not serious	serious [c]	none	42/46 (91.3%)	37/44 (84.1%)	**RR 1.10** (0.95 to 1.27)	**84 more per 1,000** (from 42 fewer to 227 more)	⊕⊕◯◯ LOW	CRITICAL
Minor adverse events: erythroderma												
1	randomised trials	very serious [a]	not serious	not serious	very serious [c]	none	2/16 (12.5%)	4/14 (28.6%)	**RR 0.44** (0.09 to 2.04)	**160 fewer per 1,000** (from 260 fewer to 297 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT
Minor adverse events: Grade II/symptomatic erythema												
2	randomised trials	serious [a]	not serious	not serious	serious [c]	none	16/46 (34.8%)	25/44 (56.8%)	**RR 0.62** (0.39 to 0.99)	**216 fewer per 1,000** (from 347 fewer to 6 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: pruritus												
1	randomised trials	very serious [a]	not serious	not serious	serious [c]	none	12/16 (75.0%)	7/14 (50.0%)	**RR 1.50** (0.83 to 2.72)	**250 more per 1,000** (from 85 fewer to 860 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Minor adverse events: nausea and vertigo												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	9/30 (30.0%)	23/30 (76.7%)	**RR 0.39** (0.22 to 0.70)	**468 fewer per 1,000** (from 598 fewer to 230 fewer)	⊕⊕⊕◯ MODERATE	NOT IMPORTANT
Minor adverse events: headache												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	14/30 (46.7%)	27/30 (90.0%)	**RR 0.52** (0.35 to 0.77)	**432 fewer per 1,000** (from 585 fewer to 207 fewer)	⊕⊕⊕◯ MODERATE	NOT IMPORTANT
Minor adverse events: diffuse hair loss												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	9/30 (30.0%)	21/30 (70.0%)	**RR 0.43** (0.24 to 0.78)	**399 fewer per 1,000** (from 532 fewer to 154 fewer)	⊕⊕⊕◯ MODERATE	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Heterogeneity caused by attrition in Nair (2015). Everyone who completed the treatment showed disease improvement.
c. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Psoralen-NB-UVB compared to PUVA for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Psoralen-NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: clearance												
1	randomised trials	not serious	not serious	not serious	serious [a]	none	43/50 (86.0%)	37/50 (74.0%)	**RR 1.16** (0.95 to 1.42)	**118 more per 1,000** (from 37 fewer to 311 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Serious adverse events: painful blistering within lesions, treatment stopped												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	1/50 (2.0%)	0/50 (0.0%)	**RR 3.00** (0.13 to 71.92)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	CRITICAL
Minor adverse events: erythema of sufficient intensity to require 1 or 2 treatments to be missed												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	5/50 (10.0%)	10/50 (20.0%)	**RR 0.50** (0.18 to 1.36)	**100 fewer per 1,000** (from 164 fewer to 72 more)	⊕⊕◯◯ LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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NB-UVB compared to UVA1 for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	UVA1	Relative (95% CI)	Absolute (95% CI)		
Serious adverse events												
1	randomised trials	serious [a]	[b]	not serious	[b]	none	0/40 (0.0%)	0/40 (0.0%)	not estimable	[b]	-	CRITICAL
Disease-specific physician assessment: Psoriasis Scalp Severity index (PSSI) response (3 weeks)												
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	9/40 (22.5%)	13/40 (32.5%)	**RR 0.69** (0.33 to 1.43)	**101 fewer per 1,000** (from 218 fewer to 140 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: PSSI response (6 weeks)												
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	25/40 (62.5%)	27/40 (67.5%)	**RR 0.93** (0.67 to 1.28)	**47 fewer per 1,000** (from 223 fewer to 189 more)	⊕◯◯◯ VERY LOW	CRITICAL
Minor adverse events: Erythema and mild burning sensation												
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	4/40 (10.0%)	6/40 (15.0%)	**RR 0.67** (0.20 to 2.18)	**49 fewer per 1,000** (from 120 fewer to 177 more)	⊕◯◯◯ VERY LOW	LESS IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm
c. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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NB-UVB compared to methotrexate for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	MTX	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessments: GPA (clear or nearly clear)												
1	observational studies	serious [a]	not serious	not serious	serious [b]	none	34/123 (27.6%)	41/174 (23.6%)	**RR 1.17** (0.79 to 1.74)	**40 more per 1,000** (from 49 fewer to 174 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

NB-UVB compared to adalimumab for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	adalimumab	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessments: GPA (clear or nearly clear)												
1	observational studies	serious [a]	not serious	not serious	serious [b]	none	34/123 (27.6%)	72/152 (47.4%)	**RR 0.58** (0.42 to 0.81)	**199 fewer per 1,000** (from 275 fewer to 90 fewer)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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NB-UVB compared to etanercept for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	etanercept	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessments: GPA (clear or nearly clear)												
1	observational studies	serious [a]	not serious	not serious	very serious [b]	none	34/123 (27.6%)	41/174 (23.6%)	**RR 1.17** (0.79 to 1.74)	**40 more per 1,000** (from 49 fewer to 174 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

NB-UVB compared to ustekinumab for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	ustekinumab	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessments: GPA (clear or nearly clear)												
1	observational studies	serious [a]	not serious	not serious	very serious [b]	none	34/123 (27.6%)	19/73 (26.0%)	**RR 1.06** (0.66 to 1.72)	**16 more per 1,000** (from 88 fewer to 187 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Combination NB-UVB + calcipotriol compared to combination NB-UVB + maxacalcitol for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + calcipotril	NB-UVB + maxcacalcitol	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessments: PASI improvement (complete remission)												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	10/12 (83.3%)	5/9 (55.6%)	**RR 1.50** (0.79 to 2.84)	**278 more per 1,000** (from 117 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

Combination NB-UVB + isotretinoin compared to combination NB-UVB + placebo for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + isotretinoin	NB-UVB + placebo	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: Clear/nearly clear (14 weeks)												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	14/19 (73.7%)	13/20 (65.0%)	**RR 1.13** (0.75 to 1.72)	**84 more per 1,000** (from 163 fewer to 468 more)	⊕⊕◯◯ LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Combination NB-UVB + methotrexate compared to NB-UVB monotherapy for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: PASI 75												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	19/20 (95.0%)	14/20 (70.0%)	**RR 1.36** (1.00 to 1.84)	**252 more per 1,000** (from 0 fewer to 588 more)	⊕⊕◯◯ LOW	CRITICAL
Disease improvement: PASI 90												
1	randomised trials	very serious [a]	not serious	not serious	not serious [c]	none	36/38 (94.7%)	35/37 (94.6%)	**RR 1.00** (0.90 to 1.12)	**0 fewer per 1,000** (from 95 fewer to 114 more)	⊕⊕◯◯ LOW	CRITICAL
Sustained clearance: 1 year												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	33/36 (91.7%)	30/35 (85.7%)	**RR 1.07** (0.90 to 1.26)	**60 more per 1,000** (from 86 fewer to 223 more)	⊕◯◯◯ VERY LOW	IMPORTANT
Minor adverse events: erythema (fissuring and pustulation over the lesions)												
1	randomised trials	serious [a]	not serious	not serious	very serious [b,d]	none	0/20 (0.0%)	2/20 (10.0%)	**RR 0.20** (0.01 to 3.92)	**80 fewer per 1,000** (from 99 fewer to 292 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT
Minor adverse events: nausea												
1	randomised trials	serious [a]	not serious	not serious	very serious [b,d]	none	3/20 (15.0%)	0/20 (0.0%)	**RR 7.00** (0.38 to 127.32)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

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b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
c. No clinically important difference - between MIDs
d. Wide conference interval (no events on one arm and small study size)

Combination NB-UVB + methotrexate compared to methotrexate monotherapy for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	MTX monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: PASI 90												
2	randomised trials	serious [a]	not serious	not serious	serious [b]	none	53/58 (91.4%)	37/58 (63.8%)	**RR 1.43** (1.16 to 1.77)	**274 more per 1,000** (from 102 more to 491 more)	⊕⊕◯◯ LOW	CRITICAL
Sustained clearance: 1 year												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	33/36 (91.7%)	14/22 (63.6%)	**RR 1.44** (1.03 to 2.01)	**280 more per 1,000** (from 19 more to 643 more)	⊕⊕⊕◯ MODERATE	IMPORTANT
Minor adverse events: nausea												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	7/38 (18.4%)	8/38 (21.1%)	**RR 0.88** (0.35 to 2.17)	**25 fewer per 1,000** (from 137 fewer to 246 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Combination NB-UVB + etanercept compared to etanercept monotherapy for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + etanercept	Etanercept monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥PASI75 (24 weeks)												
2	randomised trials	serious [a]	not serious	not serious	serious [b]	none	33/52 (63.5%)	30/53 (56.6%)	**RR 1.12** (0.82 to 1.53)	**68 more per 1,000** (from 102 fewer to 300 more)	⊕⊕◯◯ LOW	CRITICAL
Serious adverse events												
2	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	0/52 (0.0%)	3/53 (5.7%)	**RR 0.15** (0.01 to 2.74)	**48 fewer per 1,000** (from 56 fewer to 98 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: PGA (24 weeks)												
2	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	19/52 (36.5%)	23/53 (43.4%)	**RR 0.84** (0.53 to 1.33)	**69 fewer per 1,000** (from 204 fewer to 143 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
c. Wide confidence interval (no events on one arm)

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Combination NB-UVB + cognitive-behavioural (CBT) compared to NB-UVB monotherapy for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + CBT	NB-UVB	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: PASI 75 (8 weeks)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	13/23 (56.5%)	3/22 (13.6%)	**RR 4.14** (1.36 to 12.59)	**428 more per 1,000** (from 49 more to 1,000 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease improvement: PASI 75 (12 weeks: 4 weeks follow-up)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	12/23 (52.2%)	1/22 (4.5%)	**RR 11.48** (1.63 to 81.04)	**476 more per 1,000** (from 29 more to 1,000 more)	⊕⊕⊕◯ MODERATE	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

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Combination NB-UVB + fumaric acid esters (FAE) compared to FAE monotherapy for psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + FAE	FAE	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: PASI 75 (6 weeks)												
1	randomised trials	serious [a]	not serious	not serious	not serious [b]	none	11/14 (78.6%)	0/16 (0.0%)	**RR 26.07** (1.67 to 405.71)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease improvement: PASI 75 (6 months)												
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	8/14 (57.1%)	7/16 (43.8%)	**RR 1.31** (0.64 to 2.68)	**136 more per 1,000** (from 158 fewer to 735 more)	⊕◯◯◯ VERY LOW	CRITICAL
Minor adverse events: Gastrointestinal complaints												
1	randomised trials	serious [a]	not serious	not serious	serious [c]	none	3/14 (21.4%)	12/16 (75.0%)	**RR 0.29** (0.10 to 0.81)	**533 fewer per 1,000** (from 675 fewer to 142 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: Lymphopenia												
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	6/14 (42.9%)	5/16 (31.3%)	**RR 1.37** (0.53 to 3.53)	**116 more per 1,000** (from 147 fewer to 791 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Wide confidence interval (no events on one arm and very small study size)
c. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

D.2 Vitiligo

NB-UVB (Bioskin®) compared to betamethasone dipropionate for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	betamethasone dipropionate	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	92/100 (92.0%)	22/23 (95.7%)	**RR 0.96** (0.87 to 1.07)	**38 fewer per 1,000** (from 124 fewer to 67 more)	⊕⊕◯◯ LOW	CRITICAL

a. No clinically important difference - between MIDs

NB-UVB (Bioskin®) compared to calcipotriol ointment for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	calcipotriol	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	92/100 (92.0%)	13/18 (72.2%)	**RR 1.27** (0.95 to 1.71)	**195 more per 1,000** (from 36 fewer to 513 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

NB-UVB (Bioskin®) compared to L-phenylalanine cream for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	L-phenylalanine	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	not serious	none	92/100 (92.0%)	7/18 (38.9%)	**RR 2.37** (1.32 to 4.23)	**533 more per 1,000** (from 124 more to 1,000 more)	⊕⊕◯◯ LOW	CRITICAL

NB-UVB (Bioskin®) compared to pimecrolimus for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	pimecrolimus	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	92/100 (92.0%)	14/19 (73.7%)	**RR 1.25** (0.95 to 1.64)	**184 more per 1,000** (from 37 fewer to 472 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

NB-UVB (Bioskin®) compared to tacrolimus for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	tacrolimus	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	92/100 (92.0%)	17/22 (77.3%)	**RR 1.19** (0.94 to 1.50)	**147 more per 1,000** (from 46 fewer to 386 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

NB-UVB compared to oral minocycline for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	oral minocycline	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: VIDA 0, -1 after 12 months												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	16/21 (76.2%)	7/21 (33.3%)	**RR 2.29** (1.19 to 4.38)	**430 more per 1,000** (from 63 more to 1,000 more)	⊕⊕◯◯ LOW	CRITICAL
Minor adverse events												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	0/21 (0.0%)	3/21 (14.3%)	**RR 0.14** (0.01 to 2.61)	**123 fewer per 1,000** (from 141 fewer to 230 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

NB-UVB (hand-held) compared to placebo for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB (hand-held)	Placebo	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation (4 months)												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	2/19 (10.5%)	0/10 (0.0%)	**RR 2.75** (0.14 to 52.33)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	CRITICAL
Disease-specific patient self-assessment: patient Benefit index (PBI) (4 months)												
1	randomised trials	not serious	not serious [b]	not serious	not serious	none	17	10	-	MD **0.01 higher** (0.81 lower to 0.83 higher)	⊕⊕⊕⊕ HIGH	CRITICAL
Minor adverse events: Grade II/III erythema over the 4 months												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	5/19 (26.3%)	0/10 (0.0%)	**RR 6.05** (0.37 to 99.49)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: pruritus over the 4 months												
1	randomised trials	not serious	not serious	not serious	very serious [a,c]	none	2/19 (10.5%)	0/10 (0.0%)	**RR 2.75** (0.14 to 52.33)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: hyperpigmentation over the 4 months												

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB (hand-held)	Placebo	Relative (95% CI)	Absolute (95% CI)		
1	randomised trials	not serious	not serious	not serious	very serious [a,c]	none	3/19 (15.8%)	0/10 (0.0%)	**RR 3.85** (0.22 to 67.93)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: dry-skin over the 4 months												
1	randomised trials	not serious	not serious	not serious	very serious [a,c]	none	3/19 (15.8%)	0/10 (0.0%)	**RR 3.85** (0.22 to 67.93)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: cold sores over the 4 months												
1	randomised trials	not serious	not serious	not serious	very serious [a,c]	none	1/19 (5.3%)	0/10 (0.0%)	**RR 1.65** (0.07 to 37.18)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
b. No clinical important difference - between MIDs
c. Wide confidence interval (no events on one arm and very small study size)

DRAFT

NB-UVB (hand-held) compared to topical corticosteroid (mometasone furoate 0.1%) for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB (hand-held)	mometasone furoate 0.1%	Relative (95% CI)	Absolute (95% CI)		
Disease improvement (≥50% repigmentation) after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	29/169 (17.2%)	16/173 (9.2%)	**RR 1.86** (1.05 to 3.29)	**80 more per 1,000** (from 5 more to 212 more)	⊕⊕◯◯ LOW	CRITICAL
Disease-specific physician assessment (VAS) after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	22/169 (13.0%)	12/173 (6.9%)	**RR 1.88** (0.96 to 3.67)	**61 more per 1,000** (from 3 fewer to 185 more)	⊕⊕◯◯ LOW	CRITICAL
Disease-specific patient self-assessment (target patch) VNS after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	27/169 (16.0%)	20/173 (11.6%)	**RR 1.38** (0.81 to 2.37)	**44 more per 1,000** (from 22 fewer to 158 more)	⊕⊕◯◯ LOW	CRITICAL
Loss of treatment response (in those with treatment success at 9 months) 21 months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	10/27 (37.0%)	6/20 (30.0%)	**RR 1.23** (0.54 to 2.83)	**69 more per 1,000** (from 138 fewer to 549 more)	⊕◯◯◯ VERY LOW	IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB (BioSkin®) + betamethasone dipropionate compared to NB-UVB (BioSkin®) monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + betamethasone dipropionate	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	27/28 (96.4%)	92/100 (92.0%)	**RR 1.05** (0.96 to 1.15)	**46 more per 1,000** (from 37 fewer to 138 more)	⊕⊕◯◯ LOW	CRITICAL

a. No clinically important difference - between MIDs

Combination NB-UVB (BioSkin®) + calcipotriol ointment compared to NB-UVB (BioSkin®) monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + calcipotriol	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	54/60 (90.0%)	92/100 (92.0%)	**RR 0.98** (0.88 to 1.08)	**18 fewer per 1,000** (from 110 fewer to 74 more)	⊕⊕◯◯ LOW	CRITICAL

a. No clinically important difference - between MIDs

DRAFT

Combination NB-UVB (BioSkin®) + L-phenylalanine cream compared to NB-UVB (BioSkin®) monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + L-phenylalanine	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	serious [a]	not serious	not serious	not serious	none	7/18 (38.9%)	92/100 (92.0%)	**RR 0.42** (0.24 to 0.76)	**534 fewer per 1,000** (from 699 fewer to 221 fewer)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

Combination NB-UVB (BioSkin®) + pimecrolimus compared to NB-UVB (BioSkin®) monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + pimecrolimus	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	61/63 (96.8%)	92/100 (92.0%)	**RR 1.05** (0.98 to 1.13)	**46 more per 1,000** (from 18 fewer to 120 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. No clinically important difference - between MIDs

DRAFT

Combination NB-UVB (BioSkin®) + tacrolimus compared to NB-UVB (BioSkin®) monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + tacrolimus	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	56/59 (94.9%)	92/100 (92.0%)	**RR 1.03** (0.95 to 1.12)	**28 more per 1,000** (from 46 fewer to 110 more)	⊕⊕◯◯ LOW	CRITICAL

a. No clinically important difference - between MIDs

Combination NB-UVB (Bioskin®) + novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta®) vs NB-UVB monotherapy (Bioskin®) for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + Re-Pigmenta ®	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation after 12 weeks												
1	observational studies	not serious	not serious	not serious	serious [a]	none	32/36 (88.9%)	35/54 (64.8%)	**RR 1.37** (1.09 to 1.72)	**240 more per 1,000** (from 58 more to 467 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB (Bioskin®) + novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta ®) vs Re-Pigmenta ® for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + Re-Pigmenta ®	Re-Pigmenta® montherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation after 12 weeks												
1	observational studies	not serious	not serious	not serious	serious [a]	none	32/36 (88.9%)	23/37 (62.2%)	**RR 1.43** (1.08 to 1.89)	**267 more per 1,000** (from 50 more to 553 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

Combination NB-UVB (hand-held) + mometasone furoate 0.1% compared to NB-UVB (hand-held) for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB (hand-held) + mometasone furoate 0.1%	NB-UVB (hand-held)	Relative (95% CI)	Absolute (95% CI)		
Disease improvement (≥50% repigmentation) after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	35/175 (20.0%)	29/169 (17.2%)	**RR 1.17** (0.75 to 1.82)	**29 more per 1,000** (from 43 fewer to 141 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment (VAS) after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	32/175 (18.3%)	22/169 (13.0%)	**RR 1.40** (0.85 to 2.32)	**52 more per 1,000** (from 20 fewer to 172 more)	⊕⊕◯◯ LOW	CRITICAL
Disease-specific patient self-assessment (target patch) VNS after 9 months treatment												

DRAFT

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB (hand-held) + mometasone furoate 0.1%	NB-UVB (hand-held)	Relative (95% CI)	Absolute (95% CI)		
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	34/175 (19.4%)	27/169 (16.0%)	**RR 1.22** (0.77 to 1.92)	**35 more per 1,000** (from 37 fewer to 147 more)	⊕◯◯◯ VERY LOW	CRITICAL
Loss of treatment response (in those with treatment success at 9 months) 21 months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	14/34 (41.2%)	10/27 (37.0%)	**RR 1.11** (0.59 to 2.10)	**41 more per 1,000** (from 152 fewer to 407 more)	⊕◯◯◯ VERY LOW	IMPORTANT
Minor adverse events - erythema (grade 3 or 4) in adults at any time during 9 months of treatment												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	26/135 (19.3%)	22/130 (16.9%)	**RR 1.14** (0.68 to 1.90)	**24 more per 1,000** (from 54 fewer to 152 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT
Minor adverse events - erythema (grade 3 or 4) in children at any time during 9 months of treatment												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	7/39 (17.9%)	1/40 (2.5%)	**RR 7.18** (0.93 to 55.68)	**155 more per 1,000** (from 2 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB (BioSkin®) + betamethasone dipropionate compared to betamethasone dipropionate monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + betamethasone dipropionate	Betamethasone dipropionate monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	27/28 (96.4%)	22/23 (95.7%)	**RR 1.01** (0.90 to 1.13)	**10 more per 1,000** (from 96 fewer to 124 more)	⊕⊕◯◯ LOW	CRITICAL

a. No clinically important difference - between MIDs

Combination NB-UVB (BioSkin®) + calcipotriol ointment compared to calcipotriol ointment monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + calcipotriol	calcipotriol monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	54/60 (90.0%)	13/18 (72.2%)	**RR 1.25** (0.92 to 1.68)	**181 more per 1,000** (from 58 fewer to 491 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB (BioSkin®) + L-phenylalanine cream compared to L-phenylalanine cream monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + L-phenylalanine	L-phenylalanine monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	52/60 (86.7%)	7/18 (38.9%)	**RR 2.23** (1.24 to 4.01)	**478 more per 1,000** (from 93 more to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

Combination NB-UVB (BioSkin®) + pimecrolimus compared to pimecrolimus monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + pimecrolimus	pimecrolimus monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	61/63 (96.8%)	14/19 (73.7%)	**RR 1.31** (1.00 to 1.73)	**228 more per 1,000** (from 0 fewer to 538 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB (BioSkin®) + tacrolimus compared to tacrolimus monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + tacrolimus	tacrolimus monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	observational studies	not serious	not serious	not serious	serious [a]	none	56/59 (94.9%)	17/22 (77.3%)	**RR 1.23** (0.97 to 1.55)	**178 more per 1,000** (from 23 fewer to 425 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

Combination NB-UVB + novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta®) vs clobetasol propionate 0.05% ointment for vitiligo

Certainty assessment							№ of patients				Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + Re-Pigmenta ®	Clobetasol propionate monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation after 12 weeks												
1	observational studies	not serious	not serious	not serious	serious [a]	none	32/36 (88.9%)	27/33 (81.8%)	**RR 1.09** (0.89 to 1.32)	**74 more per 1,000** (from 90 fewer to 262 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB (hand-held) + mometasone furoate 0.1% compared to mometasone furoate 0.1% for vitiligo

Certainty assessment							№ of patients		Effect			
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB (hand-held) + 0.1% mometasone	0.1% mometasone furoate	Relative (95% CI)	Absolute (95% CI)	Certainty	Importance
Disease improvement (≥50% repigmentation) after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	35/175 (20.0%)	16/173 (9.2%)	**RR 2.16** (1.24 to 3.76)	**107 more per 1,000** (from 22 more to 255 more)	⊕⊕◯◯ LOW	CRITICAL
Disease-specific physician assessment (VAS) after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	32/175 (18.3%)	12/173 (6.9%)	**RR 2.64** (1.41 to 4.95)	**114 more per 1,000** (from 28 more to 274 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific patient self-assessment (target patch) VNS after 9 months treatment												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	34/175 (19.4%)	20/173 (11.6%)	**RR 1.68** (1.01 to 2.80)	**79 more per 1,000** (from 1 more to 208 more)	⊕⊕◯◯ LOW	CRITICAL
Loss of treatment response (in those with treatment success at 9 months) 21 months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	14/34 (41.2%)	6/20 (30.0%)	**RR 1.37** (0.63 to 3.00)	**111 more per 1,000** (from 111 fewer to 600 more)	⊕◯◯◯ VERY LOW	IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB + oral Janus kinase inhibitor (tofacitinib citrate) vs NB-UVB monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + tofacitinib citrate	NB-UVB montherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at end of treatment (33 weeks)												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	9/9 (100.0%)	53/58 (91.4%)	**RR 1.05** (0.89 to 1.23)	**46 more per 1,000** (from 101 fewer to 210 more)	⊕⊕◯◯ LOW	CRITICAL
Treatment tolerability												
1	observational studies	not serious	not serious	not serious	serious [a]	none	9/9 (100.0%)	57/58 (98.3%)	**RR 0.97** (0.84 to 1.13)	**29 fewer per 1,000** (from 157 fewer to 128 more)	⊕◯◯◯ VERY LOW	CRITICAL
Minor adverse events												
1	observational studies	not serious	[b]	not serious	[b]	none	0/9 (0.0%)	0/58 (0.0%)	not estimable	[b]	-	NOT IMPORTANT

a. No clinically important difference - between MIDs
b. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

DRAFT

Combination NB-UVB + afamelanotide compared to NB-UVB monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + afamelanotide	NB-UVB	Relative (95% CI)	Absolute (95% CI)		
Serious adverse events: over the 6 months												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	1/28 (3.6%)	0/27 (0.0%)	**RR 2.90** (0.12 to 68.15)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	CRITICAL
Minor adverse events: any over the 6 months												
1	randomised trials	not serious	not serious	not serious	serious [a]	none	23/28 (82.1%)	25/27 (92.6%)	**RR 0.89** (0.72 to 1.09)	**102 fewer per 1,000** (from 259 fewer to 83 more)	⊕⊕⊕◯ MODERATE	LESS IMPORTANT
Minor adverse events: pruritus over the 6 months												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	2/28 (7.1%)	2/27 (7.4%)	**RR 0.96** (0.15 to 6.37)	**3 fewer per 1,000** (from 63 fewer to 398 more)	⊕⊕◯◯ LOW	LESS IMPORTANT
Minor adverse events: hyperpigmentation over the 6 months												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	2/28 (7.1%)	0/27 (0.0%)	**RR 4.83** (0.24 to 96.16)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	LESS IMPORTANT

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB + CO_2 laser compared to CO_2 laser monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + CO_2 laser	CO_2 laser monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: >50% repigmentation, 3-months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	6/20 (30.0%)	2/20 (10.0%)	**RR 3.00** (0.69 to 13.12)	**200 more per 1,000** (from 31 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific patient self-assessment: Patient satisfaction VAS 3 months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	20	20	-	MD **1.15 higher** (0.78 lower to 3.08 higher)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

NB-UVB + CO_2 laser compared to PRP injection monotherapy for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + CO_2 laser	PRP injection monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: >50% repigmentation, 3-months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	6/20 (30.0%)	4/20 (20.0%)	**RR 1.50** (0.50 to 4.52)	**100 more per 1,000** (from 100 fewer to 704 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific patient self-assessment: Patient satisfaction VAS 3 months follow-up												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	20	20	-	MD **1.8 higher** (0.4 lower to 4 higher)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB + CO_2 laser compared to combination PRP injection + CO_2 laser for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + CO_2 laser	PRP injection + CO_2 laser	Relative (95% CI)	Absolute (95% CI)		
Disease improvement >50% repigmentation, 3-months follow-up												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	6/20 (30.0%)	20/20 (100.0%)	**RR 0.32** (0.17 to 0.60)	**680 fewer per 1,000** (from 830 fewer to 400 fewer)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific patient self-assessment: Patient satisfaction VAS 3 months follow-up												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	20	20	-	MD **2.55 lower** (4.07 lower to 1.03 lower)	⊕⊕⊕◯ MODERATE	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

DRAFT

Combination NB-UVB + piperine compared to combination NB-UVB + placebo for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + piperine	NB-UVB + placebo	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: Doctor's average scores for repigmentation (1 month)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	35	28	-	MD **13.3 higher** (9.91 higher to 16.69 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific physician assessment: Doctor's average scores for repigmentation (2 months)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	35	28	-	MD **24.9 higher** (20.43 higher to 29.37 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific physician assessment: Doctor's average scores for repigmentation (3 months)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	35	28	-	MD **37.3 higher** (32.12 higher to 42.48 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific patient self-assessment: repigmentation (1 month)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	35	28	-	MD **12.6 higher** (8.8 higher to 16.4 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific patient self-assessment: repigmentation (2 months)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	35	28	-	MD **25.6 higher** (20.09 higher to 31.11 higher)	⊕⊕⊕◯ MODERATE	CRITICAL

DRAFT

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + piperine	NB-UVB + placebo	Relative (95% CI)	Absolute (95% CI)		
Disease-specific patient self-assessment: repigmentation (3 months)												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	35	28	-	MD **32.9 higher** (26.44 higher to 39.36 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Minor adverse events: burning												
1	randomised trials	serious [a]	not serious	not serious	serious [b,c]	none	10/35 (28.6%)	0/28 (0.0%)	**RR 16.92** (1.03 to 276.68)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: redness												
1	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	6/35 (17.1%)	0/28 (0.0%)	**RR 10.47** (0.62 to 178.27)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕◯◯◯ VERY LOW -	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
c. Wide confidence interval (no events on one arm)

DRAFT

Combination NB-UVB + betamethasone injection + ALA compared to combination NB-UVB + betamethasone injection + placebo for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + betamethasone injection + ALA	NB-UVB + betamethasone injection + placebo	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: >50% repigmentation at 3 months												
1	randomised trials	not serious	not serious	not serious	serious [a]	none	11/26 (42.3%)	5/24 (20.8%)	**RR 2.03** (0.83 to 4.99)	**215 more per 1,000** (from 35 fewer to 831 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease improvement: >50% repigmentation at 6 months												
1	randomised trials	serious [b]	not serious	not serious	very serious [b]	none	18/26 (69.2%)	16/24 (66.7%)	**RR 1.04** (0.71 to 1.52)	**27 more per 1,000** (from 193 fewer to 347 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific patient self-assessment: VAS ≥5 at 3 months												
1	randomised trials	not serious	not serious	not serious	very serious [b]	none	12/26 (46.2%)	8/24 (33.3%)	**RR 1.38** (0.69 to 2.79)	**127 more per 1,000** (from 103 fewer to 597 more)	⊕⊕◯◯ LOW	CRITICAL
Disease-specific patient self-assessment: VAS ≥5 at 6 months												
1	randomised trials	serious [b]	not serious	not serious	very serious [b]	none	18/26 (69.2%)	15/24 (62.5%)	**RR 1.11** (0.74 to 1.66)	**69 more per 1,000** (from 163 fewer to 413 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
b. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

DRAFT

Combination NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after compared to combination NB-UVB before + cultured autologous melanocyte transplantation for vitiligo

Certainty assessment							№ of patients		Effect			
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + cultured autologous melanocyte transplantation + NB-UVB	NB-UVB + cultured autologous melanocyte transplanation	Relative (95% CI)	Absolute (95% CI)	Certainty	Importance
Disease improvement: ≥50% repigmentation at 6 months												
1	randomised trials	serious [a]	not serious	not serious	not serious [b]	none	110/120 (91.7%)	100/117 (85.5%)	**RR 1.07** (0.98 to 1.18)	**60 more per 1,000** (from 17 fewer to 154 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Serious adverse events												
1	randomised trials	serious [a]	[c]	not serious	[c]	none	0/120 (0.0%)	0/117 (0.0%)	not estimable	[c]	-	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. No clinical important difference - between MIDs
c. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

DRAFT

NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after compared to cultured autologous melanocyte transplantation + NB-UVB after for vitiligo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + cultured autologous melanocyte transplantation + NB-UVB	NB-UVB + cultured autologous melanocyte transplantation	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% repigmentation at 6 months												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	110/120 (91.7%)	101/117 (86.3%)	**RR 1.06** (0.97 to 1.16)	**52 more per 1,000** (from 26 fewer to 138 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Serious adverse events												
1	randomised trials	serious [a]	[c]	not serious	[c]	none	0/120 (0.0%)	0/117 (0.0%)	not estimable	[c]	-	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. No clinical important difference - between MIDs
c. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

DRAFT

NB-UVB before + cultured autologous melanocyte transplantation + NB-UVB after compared to cultured autologous melanocyte transplantation monotherapy for vitiligo

Certainty assessment							№ of patients		Effect			
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + cultured autologous melanocyte transplantation + NB-UVB	Cultured autologous melanocyte transplanation monotherapy	Relative (95% CI)	Absolute (95% CI)	Certainty	Importance
Disease improvement: ≥50% repigmentation at 6 months												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	110/120 (91.7%)	80/117 (68.4%)	**RR 1.34** (1.17 to 1.53)	**232 more per 1,000** (from 116 more to 362 more)	⊕⊕◯◯ LOW	CRITICAL
Serious adverse events												
1	randomised trials	serious [a]	[c]	not serious	[c]	none	0/120 (0.0%)	0/117 (0.0%)	not estimable	[c]	-	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
c. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

DRAFT

D.3 Eczema/atopic dermatitis

NB-UVB compared to control (unexposed) for eczema

STRATA: Children (0-12) and young people (12-17 years)

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	control (unexposed)	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: SASSAD ≤10 at 12 weeks												
1	observational studies	not serious	not serious	not serious	serious [a]	none	12/31 (38.7%)	1/26 (3.8%)	**RR 10.06** (1.40 to 72.33)	**348 more per 1,000** (from 15 more to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: Mean change in SASSAD score at 12 weeks												
1	observational studies	not serious	not serious	not serious	not serious	very strong association	31	26	-	MD **13.2 lower** (18.7 lower to 7.7 lower)	⊕⊕⊕⊕ HIGH	CRITICAL
Sustained clearance/benefit: 6 months												
1	observational studies	serious [b]	not serious	not serious	serious [c,d]	none	8/31 (25.8%)	0/26 (0.0%)	**RR 14.34** (0.87 to 237.25)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕◯◯◯ VERY LOW	IMPORTANT

a. Wide confidence interval (very few events on one arm)
b. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
c. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
d. Wide confidence interval (no events on one arm)

DRAFT

Combination NB-UVB + UVA compared to NB-UVB monotherapy for eczema

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + UVA	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: clearance rate >75% of the initial affected TBSA												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	5/10 (50.0%)	11/16 (68.8%)	**RR 0.73** (0.36 to 1.47)	**186 fewer per 1,000** (from 440 fewer to 323 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

DRAFT

D.4 Hand and foot dermatoses
NB-UVB compared to immersion PUVA for palmoplantar dermatoses

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	Immersion PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: Clear/nearly clear: PGA response (0 or 1)												
1	randomised trials	very serious [a]	not serious	not serious	serious [b]	none	7/30 (23.3%)	13/30 (43.3%)	**RR 0.54** (0.25 to 1.16)	**199 fewer per 1,000** (from 325 fewer to 69 more)	⊕◯◯◯ VERY LOW	CRITICAL
Serious adverse events												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	0/30 (0.0%)	1/30 (3.3%)	**RR 0.33** (0.01 to 7.87)	**22 fewer per 1,000** (from 33 fewer to 229 more)	⊕◯◯◯ VERY LOW	CRITICAL
Minor adverse events (moderate)												
1	randomised trials	serious [a]	not serious	not serious	serious [b]	none	10/30 (33.3%)	2/30 (6.7%)	**RR 5.00** (1.19 to 20.92)	**267 more per 1,000** (from 13 more to 1,000 more)	⊕⊕◯◯ LOW	IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

NB-UVB compared to PUVA for palmoplantar dermatosis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: improvement or clear skin (at end of treatment)												
1	observational studies	not serious	not serious	not serious	serious [a]	none	29/56 (51.8%)	38/62 (61.3%)	**RR 0.84** (0.61 to 1.16)	**98 fewer per 1,000** (from 239 fewer to 98 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

Combination NB-UVB + MTX compared to NB-UVB monotherapy for palmoplantar psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	NB-UVB monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: >50% improvement in ESIF												
1	observational studies	not serious	not serious	not serious	serious [a]	none	17/17 (100.0%)	11/12 (91.7%)	**RR 1.10** (0.89 to 1.36)	**92 more per 1,000** (from 101 fewer to 330 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB + MTX compared to MTX monotherapy for palmoplantar psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	MTX monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: >50% improvement in ESIF												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	17/17 (100.0%)	8/8 (100.0%)	**RR 1.00** (0.84 to 1.19)	**0 fewer per 1,000** (from 160 fewer to 190 more)	⊕⊕◯◯ LOW	CRITICAL

a. No clinically important difference - between MIDs

Combination NB-UVB + MTX compared to combination salicylic acid 6% ointment + MTX for palmoplantar psoriasis.

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	Salicylic acid 6% ointment + MTX	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: >50% improvement in ESIF (palmar)												
1	observational studies	not serious	not serious	not serious	serious [a]	none	17/17 (100.0%)	10/11 (90.9%)	**RR 1.11** (0.88 to 1.40)	**100 more per 1,000** (from 109 fewer to 364 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: >50% improvement in ESIF (plantar)												
1	observational studies	not serious	not serious	not serious	serious [a]	none	17/17 (100.0%)	8/10 (80.0%)	**RR 1.26** (0.90 to 1.75)	**208 more per 1,000** (from 80 fewer to 600 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB + MTX compared to combination topical tacrolimus 0.1% ointment + MTX for palmoplantar psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	Topical tacrolimus 0.1% ointment + MTX	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: >50% improvement in ESIF (palmer)												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	17/17 (100.0%)	4/4 (100.0%)	**RR 1.00** (0.74 to 1.35)	**0 fewer per 1,000** (from 260 fewer to 350 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: >50% improvement in ESIF (plantar)												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	17/17 (100.0%)	3/4 (75.0%)	**RR 1.39** (0.78 to 2.48)	**292 more per 1,000** (from 165 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

DRAFT

Combination NB-UVB + MTX compared to combination topical tazarotene 0.1% ointment + MTX for palmoplantar psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	Topical tazarotene 0.1% ointment + MTX	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: >50% improvement in ESIF												
1	observational studies	not serious	not serious	not serious	serious [a]	none	17/17 (100.0%)	8/9 (88.9%) [b]	**RR 1.14** (0.87 to 1.50)	**124 more per 1,000** (from 116 fewer to 444 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
b. Same results for both palmar and plantar lesions in people with palmoplantar psoriasis

Combination NB-UVB + MTX compared to combination crude tar ointment + MTX for palmoplantar psoriasis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + MTX	Crude tar ointment + MTX	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: >50% improvement in ESIF												
1	observational studies	not serious	not serious	not serious	serious [a]	none	17/17 (100.0%)	14/17 (82.4%) [b]	**RR 1.21** (0.95 to 1.53)	**173 more per 1,000** (from 41 fewer to 436 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both
b. Same results for both palmar and plantar lesions in people with palmoplantar psoriasis

DRAFT

D.5 Lichen planus

Combination NB-UVB plus topical steroids compared to NB-UVB monotherapy for lichen planus

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Combination NB-UVB plus topical steroids	NB-UVB montherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: complete response												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	5/9 (55.6%)	25/34 (73.5%)	**RR 0.76** (0.41 to 1.40)	**176 fewer per 1,000** (from 434 fewer to 294 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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D.6 Graft vs host disease
NB-UVB compared to PUVA for graft vs host disease

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: complete												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	4/6 (66.7%)	3/10 (30.0%)	**RR 2.22** (0.74 to 6.70)	**366 more per 1,000** (from 78 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease improvement: ≥50% control												
2	observational studies	not serious	not serious	not serious	not serious [b]	none	9/9 (100.0%)	16/16 (100.0%)	**RR 1.00** (0.80 to 1.24)	**0 fewer per 1,000** (from 200 fewer to 240 more)	⊕⊕◯◯ LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
b. No clinically important difference - between MIDs

DRAFT

D.7 Macular hypomelanosis

NB-UVB compared to PUVA for macular hypomelanosis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement ≥50 control												
1	observational studies	serious [a]	not serious	not serious	very serious [b]	none	30/57 (52.6%)	16/27 (59.3%)	**RR 0.89** (0.60 to 1.32)	**65 fewer per 1,000** (from 237 fewer to 190 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Combination NB-UVB + topical clindamycin + benzoyl peroxide compared to NB-UVB monotherapy for macular hypomelanosis .

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + topical clindamycin + benzoyl peroxide	NB-UVB montherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: complete or nearly complete repigmentation (week 14)												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	10/15 (66.7%)	9/14 (64.3%)	**RR 1.04** (0.61 to 1.76)	**26 more per 1,000** (from 251 fewer to 489 more)	⊕◯◯◯ VERY LOW	CRITICAL
Sustained clearance/benefit: at week 38 (24 weeks follow-up)												
1	observational studies	not serious	not serious	not serious	very serious [a,b]	none	2/15 (13.3%)	2/14 (14.3%)	**RR 0.93** (0.15 to 5.76)	**10 fewer per 1,000** (from 121 fewer to 680 more)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Wide confidence interval (small number of events on both arms and very small study size)

DRAFT

D.8 Mastocytosis
NB-UVB compared to PUVA for mastocytosis

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: VAS												
1	observational studies	not serious	not serious	not serious	serious [a]	none	10	10	-	MD **0.3 lower** (1.58 lower to 0.98 higher)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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D.9 Mycosis fungoides
NB-UVB compared to PUVA for mycosis fungoides

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: complete disappearance of clinical lesions for a least 1 month												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	3/6 (50.0%)	3/3 (100.0%)	**RR 0.57** (0.25 to 1.31)	**430 fewer per 1,000** (from 750 fewer to 310 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease improvement: 90% clearance of lesions												
1	observational studies	not serious	not serious	not serious	very serious [a]	none	4/4 (100.0%)	2/3 (66.7%)	**RR 1.44** (0.64 to 3.25)	**293 more per 1,000** (from 240 fewer to 1,000 more)	⊕◯◯◯ VERY LOW	CRITICAL
Sustained clearance/ benefit: ≥6 months												
2	observational studies	not serious	not serious	not serious	very serious [a]	none	6/7 (85.7%)	4/5 (80.0%)	**RR 1.09** (0.55 to 2.17)	**72 more per 1,000** (from 360 fewer to 936 more)	⊕◯◯◯ VERY LOW	IMPORTANT

a. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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D.10 Pityriasis lichenoides

NB-UVB compared to PUVA for pityriasis lichenoides .

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: ≥50% resolution in skin lesions												
1	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	8/8 (100.0%)	7/7 (100.0%)	**RR 1.00** (0.79 to 1.27)	**0 fewer per 1,000** (from 210 fewer to 270 more)	⊕◯◯◯ VERY LOW	CRITICAL
Serious adverse events - acute/chronic												
1	randomised trials	serious [a]	[c,d]	not serious	[c,d]	none	0/8 (0.0%)	0/7 (0.0%)	not estimable	[d]	-	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
c. Very small study size
d. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

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D.11 Subacute prurigo

NB-UVB compared to MD-UVA1 for subacute prurigo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Prurigo: NB-UVB	MD-UVA1	Relative (95% CI)	Absolute (95% CI)		
Serious adverse events												
1	randomised trials	very serious [a]	[b]	not serious	[b]	none	0/13 (0.0%)	0/11 (0.0%)	not estimable	[b]	-	CRITICAL
Disease-specific physician assessment: mean change in PIP score (ITT) at 4 weeks												
1	randomised trials	very serious [a]	not serious	not serious	not serious	none	13	11	-	MD **1.55 lower** (2.62 lower to 0.48 lower)	⊕⊕◯◯ LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

NB-UVB compared to bath PUVA for subacute prurigo

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	bath PUVA	Relative (95% CI)	Absolute (95% CI)		
Serious adverse events												
1	randomised trials	very serious [a]	[b]	not serious	[b]	none	0/13 (0.0%)	0/11 (0.0%)	not estimable	[b]	-	CRITICAL
Disease-specific physician assessment: mean change in PIP score (ITT) at 4 weeks												
1	randomised trials	very serious [a]	not serious	not serious	not serious	none	13	9	-	MD **2.36 lower** (3.55 lower to 1.17 lower)	⊕⊕◯◯ LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

D.12 Pruritus

NB-UVB compared to control (UVA) for pruritus

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	control (UVA)	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: Reduction in VAS (6 weeks)												
1	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	11	10	-	MD **0.15 lower** (3.04 lower to 2.74 higher)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: Reduction in VAS (12 weeks)												
1	randomised trials	serious [a]	not serious	not serious	very serious [b,c]	none	11	10	-	MD **1.67 lower** (6.85 lower to 3.51 higher)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs
c. Very small study size

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NB-UVB compared to control (topical liquid paraffin and oral cetirizine) for pruritus

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	Control	Relative (95% CI)	Absolute (95% CI)		
Disease-specific physician assessment: VAS score decreased to ≤3												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	15/15 (100.0%)	0/15 (0.0%)	**RR 31.00** (2.02 to 475.12)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	CRITICAL
Sustained benefit: 6 months												
1	observational studies	not serious	not serious	not serious	not serious [a]	none	13/15 (86.7%)	0/15 (0.0%)	**RR 27.00** (1.75 to 416.60)	**0 fewer per 1,000** (from 0 fewer to 0 fewer)	⊕⊕◯◯ LOW	CRITICAL

a. Wide confidence interval (no events on one arm and very small study size)

Combination NB-UVB + UVA compared to NB-UVB monotherapy for pruritus

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + UVA	NB-UVB	Relative (95% CI)	Absolute (95% CI)		
Serious adverse events												
1	randomised trials	not serious	not serious	not serious	very serious [a]	none	0/26 (0.0%)	3/27 (11.1%)	**RR 0.15** (0.01 to 2.73)	**94 fewer per 1,000** (from 110 fewer to 192 more)	⊕⊕◯◯ LOW	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias

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D.13 Urticaria

NB-UVB compared to PUVA for steroid-dependent antihistamine-refractory chronic urticaria

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: clearance or marked improvement at 90 days												
1	randomised trials	serious [a]	not serious	not serious	not serious [b]	none	24/25 (96.0%)	23/25 (92.0%)	**RR 1.04** (0.91 to 1.20)	**37 more per 1,000** (from 83 fewer to 184 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease improvement: clearance or marked improvement at 180 days												
1	randomised trials	serious [a]	not serious	not serious	not serious [b]	none	23/25 (92.0%)	23/25 (92.0%)	**RR 1.00** (0.85 to 1.18)	**0 fewer per 1,000** (from 138 fewer to 166 more)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease-specific physician assessment: mean (SD) reduction in IgE levels at 90 days												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	25	25	-	MD **207.1 lower** (383.01 lower to 31.19 lower)	⊕⊕⊕◯ MODERATE	CRITICAL
Minor adverse events: nausea over 90 days												
1	randomised trials	serious [a]	not serious	not serious	serious [c]	none	0/25 (0.0%)	6/25 (24.0%)	**RR 0.08** (0.00 to 1.30)	**221 fewer per 1,000** (from -- to 72 more)	⊕⊕◯◯ LOW	NOT IMPORTANT
Minor adverse events: xerosis and tanning over 90 days												
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	13/25 (52.0%)	14/25 (56.0%)	**RR 0.93** (0.56 to 1.55)	**39 fewer per 1,000** (from 246 fewer to 308 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT
Minor adverse events: melasma over 90 days												

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Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
1	randomised trials	serious [a]	not serious	not serious	very serious [c]	none	3/25 (12.0%)	2/25 (8.0%)	**RR 1.50** (0.27 to 8.22)	**40 more per 1,000** (from 58 fewer to 578 more)	⊕◯◯◯ VERY LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. No clinical important difference - between MIDs
c. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

NB-UVB compared to PUVA for chronic urticaria

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: improvement												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	7/12 (58.3%)	6/12 (50.0%)	**RR 1.17** (0.56 to 2.45)	**85 more per 1,000** (from 220 fewer to 725 more)	⊕◯◯◯ VERY LOW	CRITICAL
Disease-specific physician assessment: Mean decrease in Total Severity Score (TSS)												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	12	12	-	MD **0.75 higher** (3.59 lower to 5.09 higher)	⊕◯◯◯ VERY LOW	CRITICAL

a. Downgraded by 1 increment if the majority of evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Combination NB-UVB + antihistamine compared to antihistamine monotherapy for chronic urticaria

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB + antihistamine	Antihistamine monotherapy	Relative (95% CI)	Absolute (95% CI)		
Disease improvement: mean change in urticaria activity score (UAS): treatment session 10												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	48	33	-	MD **5.49 higher** (3 higher to 7.98 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease improvement: mean change in urticaria activity score (UAS): treatment session 20												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	48	33	-	MD **4.02 higher** (0.63 higher to 7.41 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Disease improvement: mean change in urticaria activity score (UAS): 3 month follow-up												
1	randomised trials	serious [a]	not serious	not serious	not serious	none	48	33	-	MD **16.27 higher** (13.36 higher to 19.18 higher)	⊕⊕⊕◯ MODERATE	CRITICAL
Serious adverse events												
1	randomised trials	serious [a]	[b]	not serious	[b]	none	0/48 (0.0%)	0/33 (0.0%)	not estimable	[b]	-	CRITICAL

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Unable to assess inconsistency, imprecision or outcome due to lack of events in either arm

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D.14 Photodermatoses
NB-UVB compared to PUVA for severe polymorphic light eruption

Certainty assessment							№ of patients		Effect		Certainty	Importance
№ of studies	Study design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	NB-UVB	PUVA	Relative (95% CI)	Absolute (95% CI)		
Change in sun tolerance at 6 months: patients felt that the therapy had enabled them to spend more time outdoors												
1	randomised trials	serious [a]	not serious	not serious	very serious [b]	none	10/13 (76.9%)	9/12 (75.0%)	**RR 1.03** (0.66 to 1.60)	**23 more per 1,000** (from 255 fewer to 450 more)	⊕◯◯◯ VERY LOW	CRITICAL
Minor adverse events: induced PLE (5 weeks)												
1	randomised trials	not serious	not serious	not serious	very serious [b]	none	8/13 (61.5%)	6/12 (50.0%)	**RR 1.23** (0.60 to 2.50)	**115 more per 1,000** (from 200 fewer to 750 more)	⊕⊕◯◯ LOW	NOT IMPORTANT

a. Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias
b. Downgraded by 1 increment if the confidence interval crossed one MID or by 2 increments if the confidence interval crossed both MIDs

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Appendix E: Skin diseases: Psoriasis

E.1 Summary of included studies

E.1.1 Systematic reviews

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Yang, L. *Chin Med (UK)* 2015; **10**.	Yes	Yes	Yes (up to April 2014) PubMed, EMBASE, CINAHL, CENTRAL, AMED, China National Knowledge Infrastructure (CNKI), Chinese BioMedical Literature (CBM), Chinese Science Journals Full Text (CQVIP) and Wanfang databases	Yes (GRADE)	Yes	RCTs

Comments: A systematic review and meta-analysis to evaluate whether adding oral Chinese herbal medicine (CHM) could be beneficial for NB-UVB therapy. RCTs reporting PASI scores as an outcome were included. All trials were conducted in hospitals in China and published in Chinese. Outcomes, PASI-60 or above, PASI-90 or above and NB-UVB-induced adverse effects (AEs). Some of these outcomes match our outcomes.

Studies were excluded if they met the following exclusion criteria: (1) participants had comorbidities (2) CHM products included Western pharmaceuticals (3) there were co-interventions that used anti-psoriatic drugs or Chinese medicine treatments other than oral CHM

Summary: Eighteen RCTs involving 1416 participants were included in the systematic review, and 17 (n = 1342) were included in meta-analysis. Risk of bias in terms of blinding was high and so was in publication bias. Quality of evidence was low according the grade assessment. PASI-60 or above (risk ratio (RR) = 1.35, 95 %CI 1.26–1.45, I^2 = 5 %, number needed to treat = 4.27) and PASI-90 or above (RR = 1.71, 95 % CI 1.45–2.01, I^2 = 0 %, number needed to treat = 5.92) were higher in the intervention group. The combination treatment conferred a 24 % benefit of pasi-60 or above (83 vs 59 %, RR = 1.35, 95 % CI 1.26–1.45, $p < 0.01$). The incidence of NB-UVB-induced adverse events was lower in the intervention group (95/464 vs 123/428, RR = 0.66, 95 % CI 0.46–0.96, $p < 0.01$).

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Mild gastrointestinal reactions (2.87 %) and liver function impairments (0.68 %) were reported in the intervention group. No serious adverse events were reported.

Conclusion: The orally administrated CHM combined with NB-UVB in treating psoriasis vulgaris showed improved efficacy, but quality of evidence was low.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Almutawa, F. *Photodermatol Photoimmunol Photomed* 2015; **31**: 5-14.	Yes	Yes	Yes (January 1980 to June 2012) MEDLINE, EMBASE and Cochrane databases (Limited to English only)	Assessed, but not reported	Yes	RCTs, non-randomized clinical trials, case series

Comments: Systematic review and meta-analyses evaluating the pooled efficacy of and short-term safety of targeted UVB phototherapy (including excimer (308-nm) laser, excimer (308-nm) light, and localized NB-UVB (311–313-nm) light), topical PUVA, and PDT in the treatment of localized plaque psoriasis including palmoplantar psoriasis. Primary outcome: percentage of patients who showed at least 75% reduction in their severity score. Secondary outcome: side effects. The outcome measures match some of our outcomes.

Summary: Twenty-three studies were included, including three RCTs comparing targeted UVB with PUVA[104,105,279] and 13 case series evaluating targeted UVB.[110,269,280-290]

Two of the RCTs were on palmoplantar psoriasis (see palmoplantar dermatoses) the remaining one used localized NB-UVB (311–313-nm) light and showed this to be less effective than PUVA.[291]

A meta-analysis of all three RCTs using random effect model found topical PUVA to be more effective than non-laser targeted UVB (OR: 3.48 (95% CI 0.56–21.84), p = 0.183). The pooled effect estimate of the efficacy (75% reduction in severity score) of topical PUVA, targeted UVB, and PDT were as follows: 77% (topical PUVA), 61% (targeted UVB), and 22% (PDT). Topical PUVA and targeted UVB phototherapy are very effective in the treatment of localized psoriasis. Topical PUVA seems more effective than non-laser targeted UVB phototherapy.

Fifteen studies evaluated excimer (308-nm) laser (n=6), excimer (308-nm) light (n=4), and NB-UVB (311–313-nm) light (n=2) for the treatment of plaque psoriasis (n=13)[269,280-290] and palmoplantar psoriasis (n=2).[105,110] The pooled weighted estimate of the percentage of patients achieving 75% reduction in their severity score from these studies was 61% (95%CI 50–71%). The main side effects, which are painful erythema and blistering, ranged from 0% to 92%. This large difference was due to different study treatment protocols. The pooled weighted estimate for painful erythema and blistering was 16% (95%CI 4–31%).

By comparing the pooled weighted estimate, the efficacy was higher in studies with higher treatment frequency, two to three treatments per week (66%) than studies with lower treatment frequency, once every 7–14 days (54%). The starting dose for targeted UVB studies was either based on minimal erythema dose (MED) or using a fixed dose or skin phototype. There were no large differences between the efficacies in studies using MED as starting dose (63%) (95%CI 50–75%) vs. studies using starting doses based on skin phototype/fixed dose (57%) (95%CI 37–77%). The efficacy of different forms of targeted UVB was as follows: 70% for excimer (308-nm) laser, 59% for excimer (308-nm) light, and 49% for localized NB-UVB (311–313-nm) light.

Conclusion: Despite the limitations of this systematic review, it can be concluded that topical PUVA and targeted UVB phototherapy are very effective in the treatment of localized psoriasis. Both should be considered if topical treatments fail prior to progressing to systemic treatments or biologics. Topical PUVA therapy appears to be more effective than non-laser targeted UVB phototherapy. However, some studies showed that the efficacy of excimer (308-nm) laser approximates that of topical PUVA.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Chen, X. *Cochrane Database Syst Rev* 2013:Cd009481	Yes	Yes	Yes (up to August 2013)	Yes	Yes	RCTs

Comments: Cochrane review to assess the effects of NB-UVB phototherapy versus broad-band ultraviolet B (BB-UVB) or psoralen ultraviolet A (PUVA) photochemotherapy for psoriasis, which included chronic plaque psoriasis (CPP), guttate psoriasis (GP), and palmoplantar psoriasis (PPP). With variable degrees of silvery thickening, and surface scale. Some of the outcome measures match those set in the guideline.

Primary outcomes: Participant-rated global improvement (no papers addressed this outcome); Percentage of participants reaching Psoriasis Area and Severity Index (PASI) 75 (which meant equal to or more than 75% reduction in PASI score); Withdrawal due to side-effects; Clearance rate (Clearance was defined as no lesions of psoriasis or minimal residual activity (MRA))

Secondary outcomes: The physicians Global Evaluation score (no papers addressed this outcome); Dermatology Life Quality Index (DLQI);Number of treatments to clearance; Cumulative UV dose to clearance; Time to clearance; Clearance lasting 6 months; PASI score reduction (before and after treatment); Time to PASI 75; Relapse rate; Duration of remission; Withdrawal due to poor response; Clinical improvement; Reduction of peripheral T cells; Tolerability; Adverse events. Some of these outcomes matched some out our outcomes.

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In most of the included trials, NB-UVB was performed three times weekly, except in two trials[292,293], which carried out NB-UVB twice a week. BB-UVB was conducted three to five times weekly[48,294,295]; bath PUVA, two[296] or three[297,298] times weekly; and oral PUVA was performed two[206,292,293,299] or three[51,300] times weekly.

Summary: Twelve small RCTs involving 637 participants were included (see palmoplantar dermatoses for 13th study included). [48,51,206,292-300] Four trails were within patient.[294-296,298] Most of these were of poor methodological quality with no protocol. Some did not report on all the outcomes described in their methods section. The results of intention-to-treat analyses (ITT) were reported.

One RCT of NB-UVB compared with oral PUVA in participants with CPP (n=51), the difference in PASI 75 was not statistically significant (risk ratio (RR) 0.91, 95% confidence interval (CI) 0.63 to 1.32; low quality) nor was the time to achieve it, 9.9 weeks in both cases. In three other RCTs of CPP, the clearance rates were inconsistent because in one (n=54), there was no difference between the groups (RR 1.01, 95% CI 0.91 to 1.12), and in the other two (n= 93 & 100), the clearance rates were statistically significantly in favour of oral PUVA: RR 0.66, 95% CI 0.47 to 0.93; and RR 0.75, 95% CI 0.59 to 0.96, respectively. Pooled data from these three studies (n=247) indicated that withdrawals due to adverse events were not significantly different between either group (RR 0.71, 95% CI 0.20 to 2.54; low quality). In one study the median time to clearance in the NB-UVB group was 66 days compared to 67 days in the oral PUVA group, this was not significant.[299]

The evidence from the comparison of NB-UVB with bath PUVA in terms of clearance rate for CPP was also inconsistent: Pooled data from two within patient left-right body comparison RCTs (n=92) found no significant difference between the NB-UVB and bath PUVA groups (RR 1.79, 95% CI 0.46 to 6.91; low quality), while a parallel RCT (n=36) favoured bath PUVA (RR 0.18, 95% CI 0.05 to 0.71; low quality).

Two RCTs (n=90) found NB-UVB plus retinoid (re-NB-UVB) and PUVA plus retinoid (re-PUVA) had similar effects for treating people with CPP or GP in terms of clearance rate (RR 0.93, 95% CI 0.79 to 1.10; low quality).

One RCT (n=100) in people with CPP found no significant differences between NB-UVB and selective BB-UVB in terms of clearance rate (RR 1.40, 95% CI 0.92 to 2.13; low quality) and withdrawals due to adverse events (RR 3.00, 95% CI 0.32 to 27.87; low quality).

Evidence regarding NB-UVB and conventional BB-UVB is limited and of poor quality. None of the included studies addressed the primary outcomes in this comparison.

The reduction of DLQI scores was reported in one RCT (n=47) after 8 treatment sessions (4 weeks) and was statistically significantly greater in the oral PUVA group than in the NB-UVB group (the Mann-Whitney test, Z = -2.4, P = 0.02). In other words, the participants' QOL in the oral PUVA group was improved more than in the NB-UVB group.[293] More skin lesions in the oral PUVA group also achieved clearance lasting six months, which was statistically significant compared with those in the NBUVB group (RR 0.51, 95% CI 0.28 to 0.94).[293]

Based on a single outcome event in one RCT (n=32), no significant difference was found in clearance lasting six months after treatment completion between those in the NB-UVB and selective BB-UVB groups (5.3% versus 0%; RR 2.10, 95% CI 0.09 to 47.89).[48]

One RCT (n = 60) showed there was no significant difference in the tolerability of re-NB-UVB or re-PUVA when assessed by the clinicians (RR 1.05, 95% CI 0.76 to 1.44) or by the participants themselves (RR 1.05, 95% CI 0.73 to 1.53).[51]

Conclusion: Current evidence is very heterogeneous and needs to be interpreted with caution. The clearance rate between NB-UVB and oral PUVA is inconsistent among the included studies. Evidence regarding NB-UVB versus bath PUVA is also inconsistent. Re-NB-UVB and re-PUVA are similarly effective for treating people with CPP or GP. In practice, NB-UVB may be more convenient to use since exogenous photosensitiser is not required before phototherapy.

NB-UVB seemed to be similar to selective BB-UVB for clearing CPP.

Larger prospective studies are needed to confirm the long-term safety of NB-UVB.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Archier, E. *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.	Yes	Yes	Yes (1980-December 2010) MEDLINE, EMBASE & Cochrane databases (Limited to English and French)	Yes, but not reported	Yes	RCTs

Comments: Systematic review looking at the practical use of NB-UVB and PUVA in psoriasis, assessing respective response rates, remission duration and predictive factors of efficacy to prepare for evidence-based recommendations concerning their practical use. Some of the outcome measures match those set in the guideline, clear and sustained clearance/benefit.

Summary: Only three of the 29 RCTs included directly compared NB-UVB vs. PUVA.[292,293,299] To increase the power to detect potential differences these were combined with those extracted from therapeutic trials in which the control arm used NB-UVB (n=9) and from studies evaluating a relevant NB-UVB parameter (initial dose, increments, etc.) (n=9) the remaining 8 were about the efficacy of PUVA. The response rate defined by 75% or more improvement in PASI was 70% with NB-UVB vs. 80% with PUVA. The meta-analysis of the three comparative studies found a higher probability of remission at 6 months with PUVA than with NB-UVB [OR = 2.73 (95% CI 1.19-6.27), p = 0.02].

Eighteen of the remaining 26 were about the efficacy of NB-UVB. The choice of initial dose, according to skin type, the MED or minimal phototoxic dose, incremental regimen and periodicity of the sessions did not appear to be predictive factors of efficacy for NB-UVB or PUVA. Despite methodological limitations in trials, the number of sessions needed for psoriasis clearance appeared to be lower with PUVA than with NB-UVB (approx. 17 vs. 25, respectively).

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Patients with thick psoriasis plaques (ostraceous subtype) showed different behaviour with significant differences favouring the thrice-weekly regimen but not the number of sessions for clearance or the cumulative doses.

Conclusion: NB-UVB and PUVA are both effective therapies in treatment of psoriasis. The results suggest that compared with PUVA, NB-UVB tends to clear psoriasis less reliably, with more sessions, and provides shorter lasting clearance. However, the long-term safety of PUVA, especially its cutaneous carcinogenic risk, and the easier administration procedure often lead dermatologists to prefer NB-UVB as first line phototherapy treatment in plaque type psoriasis.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
de Jager, M. E. *J Am Acad Dermatol* 2010; **62**:1013-30.	Yes	Yes	Yes (January 1980-September 2008) PubMed, EMBASE & Cochrane databases (Limited to English, German and Dutch)	Yes, graded	Yes	RCTs, open-label trails, retrospective series, case series, case reports

Comments: Systematic review looking at efficacy and safety of all treatments for childhood psoriasis, including NB-UVB in order to produce evidence-based recommendations for therapeutic decision making in childhood psoriasis. Outcome measures included PASI; Physician Global Assessment; total severity score for erythema, scaling, and thickness; and more subjective parameters such as percentage of clearance.

Summary: Sixty-four studies were included, including 5 which treated childhood guttate and plaque psoriasis with NB-UVB radiation.

There were two open-label studies. One examined NB-UVB treatment in 20 patients with skin type IV for 12 weeks.[43] PASI 90 was achieved in 60% of patients. In all, 10% had less than 50% improvement. In the second clearance was reached in all 10 patients after a mean treatment of 11.9 weeks.[44]

The other three were retrospective case reviews. One reviewed 35 cases, which all had skin type V.[45] Clearance or minimal residual disease was found in 63%, 9% had a poor response, and 28% of patient records could not be retrieved. A second obtained records from 20 patients.[46] PASI 90 was reached in 45% and 15% showed less than 50% improvement. The third found a marked improvement in 88% of the 25 patients treated.[47]

Conclusion: Treatment of choice in mild or moderate childhood psoriasis should be first, calcipotriene with/without topical corticosteroids, followed by dithranol. Methotrexate is considered to be the systemic treatment of choice. Only in case of lack of efficacy of these modalities, treatment with NB-UVB can be considered in adolescents, but only for a short duration.

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STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Medical Advisory Secretariat *Ont Health Technol Assess Ser* 2009; **9**:1-66.	Yes	Yes	Yes (January 1999-March 2009, search alerts reviewed until May 2009) MEDLINE, MEDLINE in-process and other non-indexed citations, EMBASE, Cochrane databases & Centre for Reviews and Dissemination/International Agency for Health Technology Assessment (Limited to English)	Yes (GRADE)	Yes	RCTs (excluding side-to-side or half body comparisons)

Comments: Evidence based analysis to determine the effectiveness and safety of UV phototherapy, including NB-UVB for moderate-to-severe plaque psoriasis.

Summary: A 2000 health technology evidence report on the overall management of psoriasis by The National Institute Health Research (NIHR) Health Technology Assessment Program of the UK was identified. The report included 109 RCT studies published between 1966 and June 1999 involving four major treatment approaches, including 21 on UVB and five involving both UVA and UVB The RCT studies included comparisons of treatment schedules, ultraviolet source, addition of adjuvant therapies, and comparisons between phototherapy and topical treatment schedules. Because of heterogeneity, no synthesis or meta-analysis could be performed. Overall, the reviewers concluded that the efficacy of only five therapies could be supported from the RCT-based evidence review: including photochemotherapy or phototherapy, cyclosporin, systemic retinoids, combination topical vitamin D3 analogues (calcipotriol) and corticosteroids in combination with phototherapy and fumarates.

This review was performed as an update to this NIHR 2000 systemic review. An additional 26 RCT reports examining phototherapy or photochemotherapy for psoriasis were identified, 17 involving NB-UVB.[48,50,53,292,293,299,301-310] Among the studies were two RCTs comparing UV wavelength sources,[48,310] four RCTs comparing different forms of phototherapy,[292,293,299,305] one RCTs combining phototherapy with prior spa saline bathing,[50] five RCTs combining phototherapy with topical agents,[302-304,308,309] two RCTs combining phototherapy with the systemic immunosuppressive agents methotrexate or alefacept,[307,311] and one comparing a combination therapy with phototherapy and psychological intervention involving simultaneous audiotape sessions on mindfulness and stress reduction.[301] Two trials also examined the effect of treatment setting on effectiveness of phototherapy, one on inpatient versus outpatient therapy and one on outpatient clinic versus home-

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based phototherapy.[53,306]

Conclusion:

- Phototherapy is an effective treatment for moderate-to-severe plaque psoriasis (moderate quality and adequate study evidence)
- NB phototherapy is more effective than BB phototherapy for moderate-to-severe plaque psoriasis (high quality but limited study evidence)
- Oral-PUVA has a greater clinical response, requires less treatments and has a greater cumulative UV irradiation dose than UVB to achieve treatment effects for moderate-to-severe plaque psoriasis (high quality and adequate study evidence)
- Spa salt-water baths prior to phototherapy did increase short term clinical response of moderate-to-severe plaque psoriasis but did not decrease cumulative UV irradiation dose
- Addition of topical agents (vitamin D3 calcipotriol) to NB-UVB did not increase mean clinical response or decrease treatments or cumulative UV irradiation dose
- Methotrexate prior to NB-UVB in high need psoriasis patients did significantly increase clinical response, decrease number of treatment sessions and decrease cumulative UV irradiation dose
- Effectiveness and safety of home NB-UVB phototherapy was not inferior to NBUVB phototherapy provided in a clinic to patients with psoriasis referred for phototherapy. Treatment burden was lower and patient satisfaction was higher with home therapy and patients in both groups preferred future phototherapy treatments at home

However, many of the evidence gaps identified in the NIHR 2000 evidence review on psoriasis management persisted. In particular, the lack of evidence on the comparative effectiveness and/or cost effectiveness between the major treatment options for moderate-to-severe psoriasis remained. The evidence on effectiveness and safety of longer-term strategies for disease management has also not been addressed. Evidence for the safety, effectiveness, or cost-effectiveness of phototherapy delivered in various settings is emerging but is limited. In addition, because all available treatments for psoriasis – a disease with a high prevalence, chronicity, and cost – are palliative rather than curative, strategies for disease control and improvements in self-efficacy employed in other chronic disease management strategies should be investigated.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Ashcroft, D. M. *Arch Dermatol* 2000; **136**:1536-43.	Yes	Yes	Yes (1987- January 1999) Cochrane Controlled trails Register, EMBASE, MEDLINE & BIDS Index to Scientific and Technical Proceedings	Yes	Yes	RCTs

Comments: Quantitative systematic review examining the efficacy and tolerability of calcipotriene combined with phototherapy or systemic therapies compared with monotherapy for the treatment of chronic plaque psoriasis. Guttate, pustular, or erythrodermic psoriasis were excluded.

Outcome measures: Rate ratios (RRs) for marked improvement or clearance in patient and investigator overall assessments of response; mean difference in percentage change in PASI; and RRs for clearance in patient and investigator overall assessments of response. Adverse effects were estimated with the RR and the rate difference in terms of withdrawal rate, proportion of patients experiencing adverse events, and proportion of patients with cutaneous and non-cutaneous adverse effects.

Summary: Eleven RCTs involving 756 patients were included, but only 1 involved NB-UVB (n=20).

This RCT comparing the combination therapy TL01 UV-B therapy and calcipotriene with TL01 UV-B monotherapy showed that with the exception of a slight increase in serum phosphate in the group receiving combination therapy (from 0.92 to 1.22 mmol/l; p = 0.046), no differences were observed between or within the groups. PASI improved to a greater extent in those patients receiving the combination of TL01 UVB and calcipotriol (p = 0.045), but this was not significant.[49]

There is limited evidence that use of calcipotriene might reduce the cumulative exposure to phototherapy and systemic treatment. During the short duration of this trial, there were no significant differences in withdrawal rates or adverse effects between the combined regimen and the corresponding monotherapy control intervention.

Conclusion: Overall, there is insufficient evidence to support any large effects in favour of UVB combination treatment with calcipotriene.

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E.1.2 Randomised controlled trails

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Nair RV, *et al. Clin Epidemiol Glob Health* 2015; **3**:S75-S9. RCT, single tertiary care centre, South Korea	n=30 psoriasis patients NB-UVB 5 F: 11 M Median age (range): 41 years (26-60) Skin type: IV (1), |V (13), VI (2) PUVA 4 F: 10 M Median age (range): 45.5 years (21-61) Skin type: V (11), VI (3) Inclusion criteria: ≥18 years, PASI > 10 Exclusion criteria: History of photosensitivity, photosensitive disorders, on regular intake of photosensitizing drugs/ immunosuppressant therapy,	NB-UVB (16) Initial dose was 280 mJ/cm^2 followed by 10% increment per exposure. Treatment was given thrice weekly on alternate days. If there was asymptomatic well-defined erythema, the next exposure was postponed and the increment for each visit was only 5%. If the patient developed painful erythema with or without oedema and bullae, no treatment was given until recovery, and then the dose was reduced by 50% of initial dose, and thereafter, only 5% increment was given during each visit. After disease clearance, maintenance dose of twice weekly for 4 weeks, and thereafter, once weekly for 4 weeks was given and therapy was stopped PUVA (14) Starting dose of UVA was 2.0 J/cm^2 followed by increment of 0.5 J/cm^2 per treatment. Same regimen.	**Disease improvement: PASI75** NB-UVB: 12 (75%) PUVA: 7 (50%) **Minor adverse events: symptomatic erythema*** NB-UVB: 4 PUVA: 7 **Minor adverse events: pruritus** NB-UVB: 12 PUVA: 7	Symptomatic erythema was defined as painful erythema with or without oedema, bullae or erosions. Erythema and scaling involving 90% or more of body surface area (BSA) constituted erythroderma. *That prevent continuation of treatment. Discontinued treatment, NB-UVB (4), PUVA (7) all had symptomatic erythema and pruritus. Exfoliation, NB-UVB (2), PUVA (3). The total number of treatment exposures required for disease clearance was 15 for the NB-UVB group and 18 for the PUVA group. .

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	cutaneous malignancies, severe renal, hepatic or cardiovascular dysfunction, cataract/ aphakic, pregnant women and lactating mothers, exposed to radiotherapy and on regular systemic treatment for psoriasis		**Minor adverse events: erythroderma** NB-UVB: 2 PUVA: 4	
Dayal S, *Indian J Dermatol Venereol Leprol* 2010; **76**:533-7. RCT, single centre (February 2004-May 2005), India	n=60 chronic plaque psoriasis with at least 25% BSA involvement NB-UVB arm: 12 F: 18 M Mean age: 32.1 years Mean PASI (SD): 16.82 (3.9) PUVA arm: 8 F: 22 M Mean age; 32.45 years Mean PASI (SD): 21.6 (4.42) Exclusion criteria: >16 years or >60 years, pregnancy or lactation, taken any specific antipsoriatic treatment within	NB-UVB Twice a week for 3 months or until PASI75 was achieved. With a standard initial NB-UVB dose of 280 mj/cm^2 for skin type IV or V (representative of the local population). The irradiation dose was increased by 20% of the previous dose on each subsequent visit. If symptomatic erythema (burning, pain or blistering) developed, the irradiation dose was decreased by 50% of the burning dose and, thereafter, the dose was increased by 10% on the subsequent visit. PUVA	**Disease improvement: PASI75** All **Minor adverse events: Grade II erythema** NB-UVB: 40% PUVA: 70% All developed grade I erythema **Minor adverse events: nausea and vertigo** NB-UVB: 30% PUVA: 75%	Mean PASI (SD) 3 months: NB-UVB: 1.61 (1.2) PUVA: 1.39 (0.39) Mean cumulative dose required for clearance: NB-UVB: 1.16 J/cm^2 PUVA: 7.4 J/cm^2 Mean number of treatments (SD): NB-UVB: 16.4 (4.13) PUVA: 12.7 (4.99) Mean number of days to clear (SD): NB-UVB: 65.6 (14.59) PUVA: 49.2 (20.8)

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	the last 4 weeks, renal or hepatic disease, history suggestive of photosensitivity, previous failure or intolerance to phototherapy, history suggestive of malignant melanoma or squamous cell carcinoma or polymorphic light eruptions or on immunosuppressive agents.	Same regimen with an initial standard dose of 2 J/cm$^{2.}$	**Minor adverse events: headache** NB-UVB: 45% PUVA: 90% **Minor adverse events: diffuse hair loss** NB-UVB: 30% PUVA: 70%	Minor adverse events: pruritus PUVA: 80% Figure not given for NB-UVB
de Berker DA, *et al.* Comparison of psoralen-UVB and psoralen-UVA photochemotherapy in the treatment of psoriasis. *J Am Acad Dermatol* 1997; **36**:577-81. RCT, UK F/up: 3 months (during with time only emollients were used)	n=100 chronic plaque type psoriasis NB-UVB Mean age (SD): 39.8 (15.0) years PUVA Mean age (SD): 41.7 (16.60 years Exclusion criteria: Patients receiving other systemic treatment, such as acitretin or methotrexate, or those who had received any form of UV therapy within the preceding 6 months	Psoralen-NB-UVB (50) Twice weekly TL-01, initial dose 0.6 J/cm^2, dose was then increased if tolerated in equal steps to the MPD given on the third and fourth treatment days or to a maximum 1.5 J/cm^2. Weekly 10% dose increments were used, reducing stepwise to 2.5% by the sixth week PUVA (50) Same regimen. Initial dose 2.5 J/cm^2, maximum 6 J/cm^2. Weekly 40% dose increments were used, reducing stepwise to 10% by the sixth week	**Disease improvement: Clearance** Psoralen-NB-UVB: 43 PUVA: 37 **Minor adverse events: erythema of sufficient intensity to require 1 or 2 treatments to be missed:** Psoralen-NB-UVB: 5 PUVA: 10 **Minor adverse events: painful blistering within lesions, treatment stopped** Psoralen-NB-UVB: 1 PUVA: 0	Attrition at f/up: 12: Psoralen-NB-UVB (9, 1 died), PUVA (3) Treatment stopped due to poor response: Psoralen-NB-UVB (4), PUVA (10) **Sustained clearance: 3 months f/up** Psoralen-NB-UVB: 17 PUVA: 12 Another 16, 8 on each arm had minimal relapse

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Zhou J, *et al.* *Lasers Med Sci* 2018; **33**:1979-82. RCT, single centre (July 2016-June 2017), China	n=80 scalp psoriasis with or without other skin involvement Baseline data only given for those that completed the treatment 26 F: 42 M Mean age (range): 32.7 years (21-53) NB-UVB arm Mean DLQI (SD): 20.60 (1.57) Mean PSSI (SD): 15.50 (2.08) UVA1 arm Mean DLQI (SD): 20.60 (1.91) Mean PSSI (SD): 15.28 (1.85) Inclusion criteria: Over 18 years, with clinically diagnosed and histopathologically confirmed scalp psoriasis for over 3 months. Exclusion criteria: Pregnant or breastfeeding women, photosensitivity, immunosuppressive diseases,	NB-UVB Three times weekly for 6 weeks. The initial dose was 0.3 J/cm^2, doses were increased by 0.1 J/cm^2 every 2 weeks to a maximum dose of 0.7 J/cm^2 UVA1 Same regimen. Initial dose was 20 J/cm^2, and doses were increased by 10 J/cm^2 every 2 weeks to a maximum dose of 50 J/cm^2.	**Serious adverse events** None **Disease-specific physician assessment: Psoriasis Scalp Severity Index (PSSI) response (PSSI ≤4)** NB-UVB Week 3: 9 Week 6: 25 UVA1 Week 3: 13 Week 6: 27 **Minor adverse events: Erythema and mild burning sensation** NB-UVB: 4 UVA1: 6	Attrition: 12. NB-UVB (4), UVA1 (8) **Change in psychological well-being: DLQI** NB-UVB arm mean DLQI (SD): Week 3: 16.80 (1.66) Week 6: 8.40 (1.44) Week 10: 4.00 (0.63) UVA1 arm mean DLQI (SD): Week 3: 13.00 (1.41) Week 6: 4.40 (0.75) Week 10: 2.40 (0.24) NB-UVB arm mean PSSI (SD): Week 3: 11.97 (1.67) Week 6: 4.79 (0.80) Week 10: 4.97 (0.75) UVA1 arm mean PSSI (SD): Week 3: 4.53 (1.15) Week 6: 3.18 (0.53) Week 10: 3.41 (0.36)

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	and history of skin cancer.			
Lowe, N. J. *et al.* Acitretin plus UVB therapy for psoriasis. Comparisons with placebo plus UVB and acitretin alone. *J Am Acad Dermatol* 1991; **24**:591-4. RCT (2 arms) + matched patients for 3rd arm, USA	n=34 moderate to severe psoriasis vulgaris 10 F: 24 M Age range: 20-70 years + Matched patients for acitretin arm 7 F: 9 M Exclusion criteria: Received systemic or phototherapy within 4 weeks or topical therapy within 2 weeks.	Combination NB-UVB + acitretin (16) Initial treatment 1/3 of MED, treatments were increased by this amount of time at each treatment. NB-UVB 3 times a week (alternative days), acitretin 50 mg/day Combination NB-UVB + placebo (18) Same regimen Acitretin (16) Same regimen	**Disease improvement:** **Mean psoriasis grade** Combination NB-UVB + acitretin Baseline: 8.83 (1.8) 4 weeks: 4.25 (1.48) 8 weeks: 2.55 (1.13) 12 weeks: 2.27 (1.04) Combination NB-UVB + placebo Baseline: 9.75 (2.34) 4 weeks: 6.36 (2.65) 8 weeks: 6.09 (2.70) 12 weeks: 6.36 (3.07) Acitretin Baseline: 8.45 (1.79) 4 weeks: 6.63 (1.77) 8 weeks: 5.33 (1.87) 12 weeks: 4.93 (1.94)	The psoriatic disease cleared to a greater degree in patients treated with combination acitretin-UVB with fewer treatments and smaller amounts of UVB radiation.
Mortazavi H, *et al.* *Photodermatol Photoimmunol Photomed* 2011; **27**:159-61. RCT, phototherapy clinic (September 2008-March 2010), Iran	n=39 psoriasis vulgaris 13 F: 26 M NB-UVB + isotretinoin arm Mean age (SD): 37.47 (8.94) years NB-UVB + placebo arm Mean age (SD): 37.20 (8.06) years Inclusion criteria: age >15 years, plaque type psoriasis	NB-UVB + isotretinoin (19) Isotretinoin (0.5 mg/kg/day) for 2 weeks, then NB-UVB three times a week was added to treatment in both groups for another 12 weeks. The average initial dose was 75mJ/cm^2. NB-UVB + placebo (20) Same regimen.	**Disease improvement:** **Clear/nearly clear** Week 14 PASI scoring system used but results reported as 'achieved complete clearing of psoriasis plaques (excellent response)' NB-UVB + isotretinoin: 14	Attrition: NB-UVB + isotretinoin arm (2) The observed adverse reactions were erythema, pruritus and nausea. All of them were mild to moderate. The mean cumulative NB-UVB dose in intervention group and controls was 29.95±16.11 vs.

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	(psoriasis vulgaris), diagnoses proven clinically and histologically, candidates for phototherapy Exclusion criteria: female patients in the child-bearing age who were pregnant or did not have a safe contraception or wanted to become pregnant in 1 month (after treatment), patient with abnormal lipid profile tests, or abnormal liver function tests.		NB-UVB + placebo: 13 NB-UVB + isotretinoin: Mean PASI (pre-treatment): 20.08 (7.84) Mean PASI (14th week): 1.94 (5.46) NB-UVB + placebo: Mean PASI (pre-treatment): 22.11 (7.27) Mean PASI (14th week): 3.15 (4.876)	45.77±7.72 J/cm^2 (p = 0.004).
Soliman A, *et al. J Dermatolog Treat* 2015; **26**: 528-34. RCT, outpatient clinics of Dermatology and Venereology Department (January 2011-March 2012), Egypt	n=40 chronic plaque psoriasis Combination arm 7 F: 13 M Mean age (range): 36.6 years (17-57) Baseline PASI (SD): 31 (11.7) Methotrexate arm 8 F: 12 M Mean age (range): 41.3 years (16-59) Baseline PASI (SD): 26.6 (8.9) Inclusion criteria: >20% BSI involvement; discontinued any systemic treatment including	Combination NB-UVB plus oral methotrexate Oral MTX (2.5 mg/tablet) that started by 7.5 mg once weekly in three divided doses as a test dose and gradually increasing the dose by 5 mg in the successive weeks till reaching the individual effective therapeutic dose with maximum of 30 mg/week. Plus, NB-UVB phototherapy twice weekly on non-consecutive days at the end of 3 week run-in period on the next day of oral medication. Oral methotrexate monotherapy Same regimen.	**Disease improvement: PASI90** Combination: 17 Methotrexate: 15	Attrition: 5, 3 combination, 2 methotrexate Mean time to reach end point clearance (SD): Combination: 7.4 (2.6) weeks Methotrexate: 10.4 (1.8) weeks Mean total cumulative dose of methotrexate (SD): Combination: 89.8 (65.6) mg Methotrexate: 165.5 (621.3) mg p<0.05 **Sustained clearance/benefit** Relapsed (PASI returned to 30% of the original score) before the end of the 12 weeks f/up.

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	PUVA in the last 4 weeks and topical antipsoriatic treatment in the last 2 weeks before initiations of therapy. Exclusion criteria: Severe hepatic, renal, hematological diseases, peptic ulcer, diabetes mellitus, immunosuppressive states, pregnant, and lactating females; known history of methotrexate intolerance or have reached previously the maximum total cumulative dose of methotrexate (1.5g)	End point clearance was 90 % reduction in PASI or 24 weeks. F/up: 12 weeks		Combination: 4 Methotrexate: 8 **Minor adverse events** No significant statistical difference between the two groups with regard to the occurrence of side effects. However, the side effects related to methotrexate was markedly less in the combination arm (17.6%) compared to the methotrexate arm (38.8%).
Al-Hamamy, H. R. *et al.Int J Dermatol* 2014; **53**:1531-5. RCT, Dermatology Department (February 2010-	n=120 plaque-type psoriasis Combination 16 F: 22 M Mean age (range): 39.97 years (24-60) Skin type: III (14), IV (24)	Combination NB-UVB plus methotrexate (38) 0.2 mg/kg methotrexate weekly, with a maximum of 20 mg/week, NB-UVB three times a week on non-consecutive days. Initial doses dependent on skin type 260 or 330	**Disease improvement: PASI90** Combination: 36 NB-UVB: 35 Methotrexate: 22	Attrition: 7 Baseline characteristics only given for those who completed the treatment Mean number of weeks required to

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
October 2011), Iraq	Mean baseline PASI (SD): 39.02 (5.88) NB-UVB monotherapy 19 F: 19 M Mean age (range): 41.52 years (22-60) Skin type: III (15), IV (23) Mean baseline PASI (SD): 38.97 (6.39) Methotrexate monotherapy 16 F: 21 M Mean age (range): 41.62 years (25-59) Skin type: III (21), IV (16) Mean baseline PASI (SD): 40.02 (5.28) Inclusion criteria: >10%BSA involvement Exclusion criteria: <18 years or >60 years; known history of MTX intolerance; skin cancer; photosensitivity disorders, use of photosensitizing medications; pregnant or lactating women; severe hepatic, renal, haematological, or other systemic disorders; immunosuppression; diabetes mellitus, and alcohol abuse.	mJ/cm^2. Increment 40 or 45 mJ/cm^2 in subsequent sessions. The endpoint of treatment was 90% reduction in PASI score or up to six months of treatment, whichever occurred first. NB-UVB monotherapy (37) Same regimen Methotrexate monotherapy (38) Same regimen F/up; 1 year	**Sustained clearance: 1 year** Combination: 33/36 NB-UVB: 30/35 Methotrexate: 14/22 Relapsed Combination: 3 NB-UVB: 5 Methotrexate: 8 **Minor adverse events: nausea** Combination: 7 NB-UVB: not reported Methotrexate: 8	achieve clearance (SD): Combination: 6.11 (1.28) NB-UVB: 11.42 (2.36) Methotrexate: 20.87 (4.21) $p < 0.0001$ Mean number of sessions: Combination: 17.86 (3.74) NB-UVB: 33.51 (6.9) $p < 0.0001$ Mean total cumulative dose of NB-UVB to achieve clearance: Combination: 12.13 (4.02) NB-UVB: 34.48 (13.13) $p < 0.0001$ Mean time to relapse (SD): Combination: 28 (4) weeks NB-UVB: 25.6 (4.56) weeks Methotrexate: 26 (6.41) weeks

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Mahajan R, *et al. J Eur Acad Dermatol Venereol* 2010; **24**:595-600. Single-blinded RCT (January 2007-September 2007), India	n=40 chronic plaque-type psoriasis Combination 3 F: 17 M Mean age (SD): 36.90 (11.48) years Mean PASI (SD): 16.02 (3.51) Mean %BSA (SD): 19.5 (8.85) NB-UVB 8 F: 12 M Mean age (SD): 37.30 (10.94) years Mean PASI (SD): 14.44 (2.80) Mean %BSA (SD): 14.65 (3.40) Inclusion criteria: >10% BSA involvement Exclusion criteria: <18 years or >60 years, pregnant or lactating women, those with severe hepatic, renal, haematological or other systemic disorders, immunosuppression, diabetes mellitus, obesity (body mass index >30 kg/m^2) or alcohol abuse.	Combination NB-UVB plus methotrexate Oral methotrexate in a dose of 0.5 mg/kg once weekly with a maximum of 30 mg/week and NB-UVB Mean total cumulative dose of methotrexate (SD) 196 (80.89) mg (range 90–405 mg). Combination NB-UVB plus placebo Same regimen F/up: 12 weeks	**Disease improvement: PASI 75** Combination: 19/20 NB-UVB: 14/20 **Minor adverse events: erythema (fissuring and pustulation over the lesions)** Combination: 0/20 NB-UVB: 2/20 **Minor adverse events: nausea** Combination: 3/20 NB-UVB: 0/20	Attrition: 3 due to disease exacerbation, combination (1), NB-UVB (2) Mean number of weeks of treatment: Combination: 7.50 (3.03) NB-UVB: 13.50 (6.92) Mean number of NB-UVB sessions: Combination: 17.05 (6.71) NB-UVB: 34.05 (16.92) Mean NB-UVB dose received: Combination: 8.86 (5.40) J/cm^2 NB-UVB: 24.45 (18.18) J/cm^2 Minor adverse events: increase itching (40%), erythema (10%) Relapse by 12-week f/up (29) Combination: 4 NB-UVB: 5

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Park KK, *et al. J Eur Acad Dermatol Venereol* 2013; **27**:899-906. Randomised 'head-to-head' pilot study, USA	n=30 moderate-to-severe plaque psoriasis 4 F: 21 M Race: Asian/Pacific Islander (5), Hispanic (6), Middle Eastern (1), Caucasian (13) BMA: >35 (15), <35 (10) Baseline mean BSA (SD): 26.9 (10.4) Baseline mean PASI (SD): 15.9 (4.27) Inclusion criteria: Obese with a BMI of 30 or greater, 18 years of age or older and diagnosed with stable moderate-to-severe plaque psoriasis Exclusion criteria: erythrodermic, pustular, or guttate psoriasis, or any other skin condition that would interfere with psoriasis	All subjects received 50 mg of etanercept twice weekly for 12 weeks then were randomized: NB-UVB + etanercept (15) NB-UVB phototherapy three times a week and 50 mg of etanercept once weekly Dosing was increased 10–25% per treatment session if the patient had no erythema. When asymptomatic erythema developed, the prior dose was then held; with symptomatic erythema and tenderness, treatment was withheld until resolution and re-initiated at the dose previous to burning. Etanercept monotherapy (15) Same regimen	**Disease improvement: PASI 75** Week 12: 48% Week 24: NB-UVB + etanercept: 53.3% Etanercept: 46.7%* **Serious adverse events** None on either arm	Attrition: 5 (lost to follow-up (3), moved out of state (1), voluntarily withdrew due to progression of psoriasis (1)) NB-UVB + etanercept (2), etanercept mono therapy (3) *all with BMI <35 Nearly 70% of the combination etanercept and NB-UVB patients (9/13) had perfect NB-UVB adherence. The remainder of the patients completed 36–88%of their projected number of treatments. **Improvement in BSA (reduction)** Week 24 NB-UVB + etanercept: 59.8% (11.53 down from 27.75) Etanercept: 74.9% (5.82 down from 23.55) **Minor adverse events:** Injection site reaction (2), mild NB-UVB-related erythema and burning

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	treatment evaluation or make the above two prescription options inadvisable; evidence of active or latent tuberculosis; pregnancy; etanercept intolerance; photosensitivity; evidence of active infection within 28 days; poorly controlled medical conditions; history of drug or alcohol abuse; any type of UVB phototherapy or topical psoriasis therapy within 14 days; PUVA or any oral or systemic psoriasis treatment within 28 days; alefacept or ustekinumab within 12 weeks, TNF-a inhibitor or monoclonal antibody within 4 weeks, and any investigational drug use within 4 weeks or five half-lives		**Disease-specific physician assessment** **Improvement in PGA (clear/nearly clear)** Week 24 NB-UVB + etanercept: 46.1% Etanercept: 63.7%	(2), self-limited mild upper respiratory tract infection (5). The remaining side effects were limited to single episodes: watery diarrhoea, folliculitis, shingles, running injury, lower extremity musculoskeletal pain, weight gain, low grade squamous intraepithelial lesions on routine pap smear and irritant contact dermatitis unrelated to etanercept or NB-UVB.
Lynde CW, *et al. J Dermatolog Treat* 2012; **23**:261-7. Randomised, open-label, single blind (May 2008-July	n=75 psoriasis patients who had not reached PASI 90 after 12 weeks on etanercept NB-UVB + etanercept 9 F: 28 M Mean age (SD): 44.2 (11.5)	All subjects received 50 mg of etanercept twice weekly for the first 12 weeks, then were randomized: NB-UVB + etanercept (37) NB-UVB phototherapy three times a week for periods of 4 weeks* and 50 mg of etanercept once weekly	**Disease improvement: ≥PASI 75** ITT Week 24 NB-UVB + etanercept: PASI75-89 51.4%, **≥**PASI90 16.2% Etanercept: PASI75-89 44.7%, **≥**PAS90 15.9% Per-protocol (patients with high	Attrition: 13. NB-UVB + etanercept, early termination 98), lost to follow-up (2): Etanercept monotherapy, early termination (1), lost to follow-up (2) Baseline (n=99)

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
2009), 11 centres, Canada	years Etanercept monotherapy 12 F: 26 M Mean age (SD): 45.0 (13.1) years Inclusion criteria: Aged ≥18 years, with moderate-to severe plaque psoriasis (PASI and BSA of at least 10), negative tuberculin skin test and a normal or non-clinically significant chest X ray Exclusion criteria: Erythrodermic, pustular, or a predominantly guttate psoriasis. Pregnancy, lactation, a significant infection within 30 days of screening, a known hypersensitivity to etanercept, a failure to respond to NB-UVB in the past, or any contraindication to NB-UVB	Etanercept monotherapy (38) Same regimen	adherence) Week 16 NB-UVB + etanercept: ≥PASI90 42.6% Etanercept: ≥PASI90 3.4% Week 24 NB-UVB + etanercept: PASI75-89 1`00%, ≥PASI90 42.9% Etanercept: PASI75-89 55.2%, ≥PASI90 20.7% **Serious adverse events** 3 on etanercept monotherapy not related to treatment (presyncope, low blood pressure/arrhythmia, and acute appendicitis) **Disease-specific physician assessment: PGS** Week 16 NB-UVB + etanercept: 35.1% Etanercept: 21.1% Week 20 NB-UVB + etanercept: 35.1% Etanercept: 28.9% Week 24	Baseline mean PASI (SD): 17.1 (7.4) Baseline mean BSA (SD): 21.7 (14.2) * NB-UVB treatments were stopped for patients who reached PASI-90 at a subsequent planned visit. They were re-initiated for another 4 weeks if PASI-90 response was lost at a subsequent planned visit. Only 21.6% of patients achieved adherence of 80% or more for NB-UVB treatments **Change in psychological well-being: DLQI** There was no significant change in the mean DLQI score from weeks 12 to 24 (ITT: p = 0.648; per protocol: p = 0.411) **Disease-specific physician assessment: BSA** Week 24 NB-UVB + etanercept: 3.28 (3.26) down from 5.59 (6.95) at week 12 Etanercept: 7.19 (8.17) down from 8.28 (7.98) at week 12

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
			NB-UVB + etanercept: 32.4% Etanercept: 34.2%	
			Minor adverse events Injection site reaction NB-UVB + etanercept: 0 Etanercept: 6 Adverse drug reactions NB-UVB + etanercept: 3 Etanercept: 9 Infectious adverse events NB-UVB + etanercept: 7 Etanercept: 38	
Tzaneva, S. *Br J Dermatol* 2018; **178**:682-8. RCT, single centre (April 2011-April 2012), Austria	n=30 moderate-to-severe plaque psoriasis 11 F: 19 M Median age (IQR): 52 years (36-56) Inclusion criteria: aged between 18 and 80 years, moderate-to-severe chronic plaque psoriasis with both a Psoriasis Area and Severity Index (PASI) of ≥ 10 and a body surface area (BSA) affected of ≥ 10.	Fumaric acid esters (FAE) + NB-UVB (14) Accelerated FAE dosing scheme. FAE mite capsules were given once a day on the first 2 days, twice a day over the next 2 days and three times a day for the remaining 3 days of the first week. In the second week, patients were started on FAE forte once a day with weekly dose increments until the patients reached a PASI 75, If patients developed severe gastrointestinal side-effects or substantial laboratory abnormalities the daily dose was temporarily	**Disease improvement: PASI 75** Week 6 FAE + NB-UVB: 11/14 FAE: 0/16 6 months f/up: FAE + NB-UVB: 8/10 FAE: 7/11	Attrition at 6 months f/up: 9. FAE + NB-UVB (4), lost to f/up (3), lack of efficacy (1): FAE (5), side effects (2), lost to f/up (1), lack of efficacy (1), therapy changed due to deterioration in joint involvement (1) Psoriasis Log-based Area and Severity Index (PLASI) FAE mite: 30 mg dimethyl fumarate (DMF), 67 mg ethyl hydrogen fumarate calcium salt, 5 mg ethyl hydrogen fumarate magnesium salt and 3 mg ethyl hydrogen fumarate zinc salt,
			Minor adverse events Gastrointestinal complaints* FAE + NB-UVB: 3/14 FAE: 12/16 Lymphopenia	

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	Exclusion criteria: pregnancy and breastfeeding, active cancer, chronic infection or autoimmune disease, severe liver or kidney disease and inability to regularly attend for NB-UVB treatment. There was a washout period of 2 weeks for concomitant topical treatment and of 3 months for previous systemic treatments, respectively. No topical treatment was allowed during the trial with the exception of moisturizers.	reduced by one capsule. In the case of persisting side-effects, the treatment was discontinued. NB-UVB were given three times weekly over a period of 6 weeks FAE monotherapy (16) Same regimen	FAE + NB-UVB: 6/14 FAE: 5/16 *These occurred at the beginning of treatment, were dose-dependent and improved after a temporary dose reduction. Two patients had recurring episodes of flushing.	FAE forte: 120 mg DMF, 87 mg ethyl hydrogen fumarate calcium salt, 5 mg ethyl hydrogen fumarate magnesium salt and 3 mg ethyl hydrogen fumarate zinc salt. **Change in psychological well-being: Mean relative DLQI reduction** Week 8 FAE + NB-UVB: 73% FAE: 55% 6 months FAE + NB-UVB: 82% FAE: 88% **Disease-specific physician assessment: Mean PASI reduction** Week 6 FAE + NB-UVB: 69% FAE:36% 6 months FAE + NB-UVB: 83% FAE: 79%

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Piaserico S, *et al. Acta Derm Venereol* 2016; **96 (Suppl)**:91-5. RCT, university hospital psoriasis speciality clinic (October 2013-February 2015), Italy	n=45 moderate-severe plaque psoriasis Baseline data only given for those that completed the treatment 30 F: 15 M NB-UVB + CBT Mean age (95%CI): 46.4 (38-54.8) years Mean PASI (95% CI): 9 (7.6-10.4) Mean GHQ-12 (95%CI): 14.8 (6.6-21) Mean Skindex-29 symptoms (95%CI): 43.2 (35.6-50.3) Mean Skindex-29 emotions (95%CI): 41.7 (30-58.4) Mean Skindex-29 functioning (95%CI): 28.7 (18-42.4) NB-UVB monotherapy Mean age (95%CI): 56.7 (45.7-67.7) years Mean PASI (95% CI): 9.1 (7.6-10.7) Mean GHQ-12 (95%CI): 10 (6.3-12.5) Mean Skindex-29 symptoms (95%CI): 39 (27-49.7)	NB-UVB + cognitive-behavioural therapy (CBT) 3 times a week for 8 weeks. UVB dosage was increased linearly from session to session (by 5 to 15% increments according to skin type). Dosage increases were delayed only if there were signs of burning. NB-UVB monotherapy same regimen	**Disease improvement: PASI 75** 8 weeks* CBT + NB-UVB: 13 (65%) NB-UVB monotherapy:3 (15%) 12 weeks (1-month f/up) CBT + NB-UVB: 12 (60%) NB-UVB monotherapy:1 (5%)	Attrition: 5. CBT + NB-UVB (3), NB-UVB monotherapy (2) **Disease-specific physician assessment: GHQ-12 at week 8** -1.47 (-2.65 to -0.29) (*p*=0.016) **Change in psychological well-being: Skindex-29 at week 8** Skindex-29-symptoms: –4.9 (–17.283 to 7.451) (*p*= 0.355) Skindex-29-emotion: –2.8 (–5.1 to –0.5) (*p*=0.41) Skindex-29-functioning: –1.3 (–10.2 to 7.6) (*p*=0.416) STAI-I scores showed significant reductions in both groups by the end of the study, with no significant differences between the two. STAI-II mean values did not change significantly by the end of the study.

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	Mean Skindex-29 emotions (95%CI): 39.5 (29.3-49.6) Mean Skindex-29 functioning (95%CI): 33.5 (20.7-44.8)			

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E.1.3 Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Calzavara-Pinton P, *et al.* A comparative non randomized study of narrow-band (NB) (312 +/- 2 nm) UVB phototherapy versus sequential therapy with oral administration of low-dose Cyclosporin A and NB-UVB phototherapy in patients with severe psoriasis vulgaris. *Eur J Dermatol* 2005; **15**: 470-3. Prospective, single centre (October-December 2003), Italy	n=60 severe psoriasis (PASI >15) Sequential Cyclosporin A and NB-UVB 9 F: 21 M Mean age (range): 36.7 years (19-63) Skin type: II (5), III (16), IV (9) NB-UVB monotherapy 12 F: 18 M Mean age (range): 40.3 years (18-57) Skin type: II (6), III (16), IV (8) Exclusion criteria: Abnormal renal or liver function, abnormal serum, potassium and uric acid, pregnancy, <18 years, hypertension, previous or concomitant malignancy, primary or secondary immunodeficiency, active or chronic infection, drug or alcohol abuse, concomitant therapy with cyclosporin or photosensitising agents.	Sequential Cyclosporin A and NB-UVB 3 mg/kg/day Cyclosporin A for 4 weeks. Then cyclosporin A was rapidly tapered and NB-UVB begun. Mean cumulative 8.94 (6.41) J/cm^2 NB-UVB monotherapy Mean cumulative 18.34 (8.49) J/cm^2	**Disease improvement** Both highly effective Sequential Cyclosporin A and NB-UVB Baseline PASI (SD): 28.58 (7.99) End PASI (SD): 1.95 (3.63) NB-UVB monotherapy Baseline PASI (SD): 26.69 (6.67) End PASI (SD): 2.37 (2.86) **Sustained clearance: 9 months** No difference Sequential Cyclosporin A and NB-UVB PASI (SD): 17.79 (6.83) NB-UVB monotherapy PASI (SD): 21.54 (21.59)	Treatments were given until psoriasis cleared or until partial improvement was achieved without further amelioration despite another week of treatment. The difference in PASI score in favour of sequential cyclosporin A and NB-UVB was due to better improvement of psoriatic lesions that were not or were poorly exposed to NB-UVB (armpits, internatal fold, inner parts of thighs) Four patients, 2 in each group reported a single episode of excessive phototoxic reaction that was mild and transitory in nature.

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Noborio R, *et al.* Comparison of the efficacy of calcipotriol and maxacalcitol in combination with narrow-band ultraviolet B therapy for the treatment of psoriasis vulgaris. *Photodermatol Photoimmunol Photomed* 2006; **22**:262-4. Retrospective observation study, single centre (April 2001-September 2004, Japan	n=21 psoriasis vulgaris 2 F: 19 M Mean age (range): 52.2 years (28-81) Mean baseline PASI (SD): Combination NB-UVB + calcipotriol 25.3 (3.8); combination NB-UVB + maxacalcitol 19.4 (10.8)	Combination NB-UVB + topical vitamin D3 derivatives - calcipotriol (12) NB-UVB irradiation 5x a week, started at 50% MED and increased by 20% at each exposure. Calcipotriol was applied once daily in the evening after NB-UVB exposure, and white petrolatum was applied in the morning before the UVB exposure. Combination NB-UVB + topical vitamin D3 derivatives - maxacalcitol (9) Same regimen	**Disease-specific physician assessment: PASI improvement (complete remission)** NB-UVB + calcipotriol: 10 (86.3%) NB-UVB + maxacalcitol: 5 (57.2%) At the 3-week timepoint, the difference was significant (p<0.05)	Mean PASI after treatment (SD): Combination NB-UVB + calcipotriol 2.2 (1.0); combination NB-UVB + maxacalcitol 4.1 (0.9) There was a significant difference in the mean accumulated treatment doses NB-UVB + calcipotriol: 25.1 J/cm^2 NB-UVB + maxacalcitol: 35.6 J/cm^2
Gelfand JM, *et al.* Comparative effectiveness of commonly used systemic treatments or phototherapy for moderate to severe plaque psoriasis in the clinical practice setting. *Arch Dermatol* 2012; **148**:487-94. Cross-sectional study, 10 centres participating in the Dermatology Clinical Effectiveness Research Network (10 February 2010-30 June 2011), USA	n=713 psoriasis patients currently receiving a monotherapy 352 F: 361 M Mean age (SD): 48.6 (15.5) years Patients who met at least 1 of the following criteria were included: currently receiving a biologic, oral systemic, or phototherapy prescribed by the dermatologist or physician assistant for psoriasis; were candidates for systemic therapy as defined by a history of 5% or more BSA involvement as documented in the medical record;	NB-UVB (123) Median duration of use (IQR): 1.8 months (1.0-4.0) Methotrexate sodium (174) Median duration of use (IQR): 10.5 months (4.0-24.0) Adalimumab (152) Median duration of use (IQR): 11.0 months (3.0-16.8)	**Disease-specific physician assessment: Global Assessment Scale (clear or nearly clear)** NB-UVB: 27.6% (95% CI, 20.0%-36.4%) Methotrexate sodium: 23.8% (95% CI, 17.7%-30.9%) Adalimumab:47.7% (95% CI, 39.5%-56.0%)	Only 10.6% of patients receiving NB-UVB were receiving the frequency of treatments (i.e., ≥3 times per week) necessary to optimize response. While 36.1% of patients taking etanercept and 11.8% of those taking adalimumab received twice the maintenance dose recommended based on clinical trial data. Patients receiving NB-UVB also tended to be purposefully evaluated at intermediate time

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	or were previously treated with a biologic, oral systemic, or phototherapy for psoriasis Exclusion criteria: not currently receiving systemic or phototherapy for psoriasis, who were receiving more than 1 systemic or phototherapy at the time of their visit, and whose primary indication was a variant of psoriasis other than plaque (e.g., guttate, palmar plantar).	Etanercept (191) Median duration of use (IQR): 12.0 months (6.0-36.0) Ustekinumab (73) Median duration of use (IQR):4.0 months (2.0-6.0)	Etanercept: 34.2% (95% CI, 27.5%-41.4%) Ustekinumab: 26.1% (95% CI, 25.1%-48.3%)	points so assessment patterns may have systematically differed from assessment patterns of systemic medications. **Disease improvement: PASI** Statistically significant differences in PASI (*p*=0.02) across the therapies; however, absolute differences were small **Change in psychological well-being: DLQI** No statistically significant difference in DLQI between treatments (*p*=0.5) **Disease-specific physician assessment: crude response rates for patients treated for 3 or more months** NB-UVB: 41.5% (95% CI, 26.3%-57.9%) Methotrexate sodium: 26.4% (95% CI, 19.3%-34.5%) Adalimumab: 50.4% (95% CI, 41.2%-59.6%) Etanercept: 36.4% (95% CI, 29.0%-44.3%)

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
				Ustekinumab: 46% (95% CI, 31.8%-60.7%)

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E.2: Narrative findings

E.2.1 Within-patient randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Jain VK, *et al.* Enhanced response of childhood psoriasis to narrow-band UV-B phototherapy with preirradiation use of mineral oil. *Pediatric Dermatol* 2008; **25**:559-64. Randomised, single-blind left/right, outpatient dermatology department (August 2004-January 2007nn, India **STRATA**	n=20 children with psoriasis involving >20% BSA 7 F: 13 M Age range: 5-14 Skin type: IV (20) Type: chronic plaque (16), guttate (4) Mean BSA (SD): 49.10 (17.37%) Exclusion criteria: history of photoaggravation, patients on systemic treatment or UV therapy during 8 weeks preceding the study and patients with pustular or erythrodermic psoriasis.	Combination NB-UVB with mineral oil pre-treatment Mineral oil was applied 5 minutes prior to irradiation. NB-UVB was administered twice a week on non-consecutive days with initial dose of 50 mJ/cm^2 and increment of 10% at each session. NB-UVB Same regimen	**Disease-specific physician assessment: Mean MPASI (SD)** Baseline: Combination: 15.30 (5.55) NB-UVB: 15.34 (5.23) 3 weeks Combination: 7.03 (3.08) NB-UVB: 8.80 (3.33) Combination: 2.50 (1.49) NB-UVB: 4.01 (2.47) Combination: 0.72 (0.51) NB-UVB: 1.45 (0.84) Combination: 0.14 (50.34) NB-UVB: 0.64 (0.24) **Treatment tolerability** The treatment was well tolerated. **Minor adverse events** No adverse effects were observed on the mineral oil pre-treated side.	Attrition: 2 Mean cumulative dose for clearance (SD): Combination: 2956.28 (1070.09) mJ/cm^2 NB-UVB: 4088.28 (1236.65) mJ/cm^2 $p < 0.001$

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Picot E, *et al.* Treatment of psoriasis with a 311-nm UVB lamp. *Br J Dermatol* 1992; 127:509-12. Randomised, double-blind, left/right, (January-June 1990), France	n=15* psoriasis 7 F: 8 M Mean age (range): 46.5 years (24-81) Type: plaque (6), plaque/guttate 950, guttate (4) Exclusion criteria: history of photoaggravated psoriasis	NB-UVB (TL-01) Three times a week. Initial exposure was 70% of the average MED estimated from the patient's skin type The exposure time was increased by 40% if the previous exposure had induced no perceptible effect. If there was slight erythema, the exposure time was increased by 20%. and if marked erythema occurred, the same exposure time was used again. Doses were decreased by 20% in cases of minor burning, and by 40%, in cases of mild burning. Treatment was temporarily stopped If severe burning occurred. NB-UVB (TL-12) Same regimen	**Disease-specific physician assessment: %mean response of psoriasis (20th exposure)** NB-UVB (TL-01): 78.5% NB-UVB (TL-12): 73.9% P<0.01 **Minor adverse events: mean score burning** NB-UVB (TL-01): 0.33 NB-UVB (TL-12): 2.1 P<0.001 **Minor adverse events: mean score pigmentation** NB-UVB (TL-01): 1.46 NB-UVB (TL-12): 1.60	*21 patients were enrolled but results only given for those that completed All photosensitizing medical treatment, and all topical treatment, apart from pure vaseline or 1 % salicylic acid in petrolatum was prohibited

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Van Weelden H, *et al.* Comparison of narrow-band UV-B phototherapy and PUVA photochemotherapy in the treatment of psoriasis. *Acta Derm Venereol* 1990; **70**:212-5. Left/right, The Netherlands	n=10 widespread psoriasis vulgaris 2 F: 8 M Mean age (range): 48 years 921-73)	NB-UVB TL-01 twice a week. Initial dose 70% MED. Dose increment 40%, if slight erythema with previous dose 20%, if marked erythema same dose as previously. PUVA Same regimen 1% salicylic acid in petrolatum was applied daily to the entire skin after exposure in order to remove psoriatic scales and to prevent dryness	**Disease improvement:** Which side is better / Trunk / Arms/legs / Overall NB-UVB: 4 / 2 / 2 Same: 4 / 3 / 5 PUVA: 2 / 4 / 3	Seven patients preferred NB-UVB and 3 preferred PUVA. **Convenience of treatment** NB-UVB was preferred as it was less time consuming and it gives a smaller heat-load during the exposures
Calzavara-Pinton P. Narrow band UVB (311 nm) phototherapy and PUVA photochemotherapy: a combination. *J Am Acad Dermatol* 1998; **38**:687-90. Left/right, Italy	n=12 plaque-type psoriasis 12 M Mean age (range): 48.6 years (20-71) Skin type: II (6), III (6) Baseline mean PASI (SD): 13.18 (3.49) combination arm, 13.47 (3.44) PUVA arm	Combination NB-UVB and bath-PUVA Four weekly treatments were delivered and UVA doses were increased once weekly whereas 311 nm doses were adjusted at each exposure. Bath-PUVA Same regimen Emollient ointments were the only other topical agents allowed during the study	**Disease-specific physician assessment: first side to show PASI ≥95%*** Combination: 8 Simultaneously on both sides: 3 Final mean PASI (SD): Combination 0.47 (1.04) PUVA: 4.34 (3.36)	*Treatment interrupted after 20 treatments without clearing ≥95% on at least one side of body (1) Bath-PUVA-311 nm cleared psoriasis with fewer exposures and lower cumulative UVA doses under the same minimally erythemogenic conditions.

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
			Minor adverse events: excessive phototoxic reactions Combination: 6 PUVA: 5	
Kerscher M, *et al.* Combination phototherapy of psoriasis with calcipotriol and narrow-band UVB. *Lancet* 1993; **342**:923. Paired left/right, Germany	n=20 stable plaque psoriasis	NB-UVB + topical calcipotriol Topical calcipotriol 50 µg/g twice daily. NB-UVB one daily 5 times a week. Initial doses were from 0.113-0.339 J/cm^2. Doses were gradually increased up to 1.696 J/cm^2. Topical calcipotriol monotherapy Same regimen	**Disease-specific physician assessment: mean PASI reduction (2 weeks)** NB-UVB + topical calcipotriol: 68% Topical calcipotriol monotherapy: 36%	
Schiener R *et al.* Calcipotriol vs. tazarotene as combination therapy with narrowband ultraviolet B (311 nm): efficacy in patients with severe psoriasis. *Br J Dermatol* 2000; **143**:1275-8. Randomised, left/right, single-blinded, Germany	n=10 severe psoriasis 4 F: 6 M Mean age (range): 53 years (23-62) Skin type: I (2), II (6), III (2) Type: plaque (7), guttate (3) Baseline PASI score: 13.5 (95% CI 9.47-17.22) Exclusion criteria: Erythrodermic or pustular psoriasis.	NB-UVB + topical calcipotriol Topical calcipotriol ointment 0.005mg/g once daily (evening). NB-UVB once daily, four times a week. Depending on the individual skin phototype, the initial UVB doses ranged from 0.14 to 0.32 J/cm^2, with doses gradually increasing up to a maximum of 295 J/cm^2 NB-UVB + topical tazarotene Topical tazarotene gel 0.05% same regimen	**Disease improvement: Complete clearance** Median of 19 treatment sessions (range 14-28) and a median cumulative UVB dose of 22.98 J/cm^2 (range 9.24-58.22) for both body sides. Statistical analysis of all results revealed no significant difference in the reduction of the PASI scores between NB-UVB plus calcipotriol and NB-UVB plus tazarotene at any time point.	Attrition: 1 after failure to apply the gel strictly to psoriatic lesions* Six patients would prefer tazarotene and four patients calcipotriol if another course of topical treatment were necessary. The patients preferring tazarotene specified that the aqueous formulation of tazarotene was easier to apply and that the calcipotriol ointment, on the other hand, was too greasy

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
			Minor adverse events: Hyperpigmentation NB-UVB + topical calcipotriol: 1 **Itching and dryness of the skin** NB-UVB + topical tazarotene: 4 *	and sticky. However, the other four patients specifically preferred the characteristics of the calcipotriol formulation and complained about skin irritation caused by tazarotene gel.
Magliocco MA, *et al.* A randomized, double-blind, vehicle-controlled, bilateral comparison trial of bexarotene gel 1% versus vehicle gel in combination with narrowband UVB phototherapy for moderate to severe psoriasis vulgaris. *J Am Acad Dermatol* 2006; 54:115-8. Randomised, double-blind, left-right comparison, USA	n=10 moderate to severe psoriasis 2 F: 9 M* Age range: 31-77 years Inclusion criteria: ≥18 years, moderate to severe psoriasis involving 3% or more of BSA, and failed prior topical therapy Exclusion criteria: systemic therapies, greater than 15,000 IU/d vitamin A, psoralen-UVA, UVB, topical therapies (except over-the-counter emollients/ shampoos), other retinoids, or investigational drugs within 1 month before entry; anticipated prolonged sunlight/other UV exposure during the study; contraindication to topical	NB-UVB + bexarotene gel 1% Gel applied up to twice daily for 10 weeks. NB-UVB was initiated 2 weeks after topical therapy began, three times a week for 8 weeks NB-UVB + vehicle gel	**Disease-specific physician assessment: mean decrease in score** NB-UVB + bexarotene gel: 67.6% (95% confidence interval 50.9%-84.3%) NB-UVB + vehicle-gel: 48.2% (95% confidence interval 24.0%-72.5%) (*P*=0.04)	Attrition: 1 discontinued treatment due to skin irritation * One patient screened did not meet inclusion criteria so was not enrolled, sex not specified The most common dermatologic adverse events encountered in evaluable patients were macular erythematous rash (22%, 2 of 9) and skin irritation (22%, 2 of 9). Because limited UVB penetration through thick plaques inhibits efficacy, combining retinoids with UVB should enhance efficacy. Retinoids have demonstrated anti-inflammatory

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	retinoid use; current skin cancer; history of melanoma or skin-sensitizing diseases; and concurrent illness that would preclude participation; women of childbearing potential who were pregnant, lactating, or unwilling to use adequate contraception; men were excluded if they would not agree to use condoms with women of childbearing potential during the treatment period and at least 1 month afterward			effects.[Gottlieb, J Cutan Pathol 1996;23:404-18] Thus, The GDG believe that bexarotene was not merely acting as a keratolytic.
Ehsani AH *et al.* Comparison of topical 8-methoxypsoralen and narrowband ultraviolet B with narrowband ultraviolet B alone in treatment-resistant sites in plaque-type psoriasis: a placebo-controlled study. *Photodermatol Photoimmunol Photomed* 2011; **27**:294-6 Randomised, left-right (two lesions) (August 2009-March 2010), Iran	n=10 stable treatment-resistant plaques of psoriasis on the legs 6 F: 4 M Mean age (range): 36.5 years (25-65) Skin type : III (10) Inclusion criteria: ≥18 years, stable plaque-type psoriasis with less than 20% BSA involvement who had not received any systemic therapies for the past 8 weeks and topical therapies within the past 4 weeks.	Combination NB-UVB + topical methoxsalen 0.1% 8-methoxypsoralen (8MOP) cream 15 min before NB-UVB. NB-UVB was given three times per week for up to three months. NB-UVB + cold cream Same regimen Mean ± SD of the cumulative UVB dose was 38100 ± 5368 mJ/cm^2 (range: 31 130–51 880), and the total number of treatments was 39.	**Disease improvement: PASI ≥ 50%** 90%	The investigator could not be blind due to the resulting pigmentary changes on the 8MOP side.
			Disease-specific physician assessment: Mean percentage decrease in Psoriasis Severity index (13th session) Combination: 54% Control: 41.3% Difference of response between the two treatment arms was not significant (P-value = 0.069)	Complete clearance was not observed in either group after 39 sessions despite significant improvement

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	Exclusion criteria: Pregnancy, lactation, known hypersensitivity to 8MOP and photosensitive disorders.		**Treatment tolerability** All of the patients tolerated the treatment **Minor adverse events** Patchy pigmentation on the 8MOP- treated side. None of the patients showed adverse reactions to NB-UVB	
Behrens S, *et al.* Combination phototherapy of psoriasis with narrow-band UVB irradiation and topical tazarotene gel. *J Am Acad Dermatol* 2000; 42:493-5. Prospective, randomised, left/right, Germany F/up: 4 weeks	n=10 stable plaque psoriasis Baseline median PASI score: 18.3 (95% CI: 15.01-20.50)	Combination NB-UVB and topical tazarotene gel NB-UVB once a day 5 times a week. Initial dose ranged from 0.15-0.31 J/cm^2, with doses gradually increasing up to a maximum of 1.84 J/cm^2. Topical tazarotene 0.05% was applied once daily NB-UVB Same regimen	**Disease-specific physician assessment: PASI** **Median PASI (2 weeks)** Combination: 12.5 NB-UVB: 14.0 **Median PASI (4 weeks)** Combination: 6.5 (64% reduction) NB-UVB: 9.5 (48% reduction)	**Treatment tolerability** Both treatment modalities were well tolerated. **Minor adverse events** Adverse effects of tazarotene gel were limited to mild local cutaneous irritation such as transient burning and erythema of the skin
Messer G, *et al.* Pretreatment of psoriasis with the vitamin D3 derivative tacalcitol increases the responsiveness to 311-nm ultraviolet B: results of a controlled, left/right study. *Br J Dermatol* 2001; **144**:628-9.	n=24 moderately severe plaque-type or guttate-type psoriasis 11 F: 13 M Mean age: 44.3 years Inclusion criteria: ≥18 years, moderately severe plaque-	Combination NB-UVB + topical vitamin D3 derivative tacalcitol Tacalcitol ointment once daily in the evening. UVB irradiation at 311-nm three to five times a week to the side preassigned by randomisation. Dose started at 0.2-0.3 J/cm^2 and increased	**Disease-specific physician assessment: >PASI50 (3 weeks)** NB-UVB + tacalcitol: 86% Tacalcitol monotherapy: 38%	Attrition: 2, UV-induced erythema (1), reasons unrelated to study (1) In all 22 patients, the combination of tacalcitol plus 311-nm UVB was superior and therefore was continued on both sides of

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Randomised, left/right, Germany	type or guttate-type psoriasis	by 0.1 J/cm^2 after each treatment up to the MTD for 3 weeks Tacalcitol monotherapy Same regimen		the body for three further weeks. Both treatment regimens led to response rates >PASI50 greater than 80%.
Gambichler T, *et al.* Etanercept plus narrowband ultraviolet B phototherapy of psoriasis is more effective than etanercept monotherapy at 6 weeks. *Br J Dermatol* 2011; **164**:1383-6. Prospective, randomised, investigator-blinded, right-left (two plaques), Germany	n=14 with moderate to severe psoriasis 6 F: 8 M Mean age (SD): 42 (13.30 years Mean PASI (SD): 19.9 (7.4) Inclusion criteria: PASI > 10.	Combination NB-UVB plus etanercept Etanercept 25 mg twice weekly. NB-UVB was administered thrice weekly. Initial dose 70% of the MED for NB-UVB; NB-UVB doses were increased by 10–20% per session. Etanercept monotherapy Same regimen During the study, patients were allowed to use only topical emollients in addition to the treatment.	**Disease improvement: Mean relative M-PASI (SD) at 6 weeks** Combination: 64% (27.8%) Etanercept: 53.7% (36.9%) *p*=0.011	Attrition: 1 Mean (SD) histology scores of psoriatic plaques at the end of the 6 weeks treatment were significantly higher for the etanercept monotherapy than for the combination 4.6 (2.7) vs. 3.7 (2.4); *p* =0.45). As there is an increased risk for malignancy by treatment with TNF-α blockers alone or in combination with phototherapy, this highly effective combination should be restricted to short periods of time, for instance to obtain a quicker response, and to avoid long-term treatment.
Wolf P, *et al.* Treatment with 311-nm ultraviolet B enhanced response of psoriatic lesions in ustekinumab-treated patients: a randomized	n=10 moderate to severe plaque-type psoriasis 5 F: 5 M Mean age (range): 58 years (48-66)	Combination NB-UVB plus ustekinumab Ustekinumab at a standard dosage of 45 or 90 mg subcutaneously depending on body weight (below or above	**Disease improvement: PASI75 at 6 weeks** Combination: 7/9 Ustekinumab: 1/9	Attrition: 1 due to herpes infection at UV-irradiated body half At 6 weeks, 4 patients

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
intraindividual trial. *Br J Dermatol* 2012; **166**:147-53. Prospective, randomised, left-right, comparison study NCT00870285, single centre, Austria		100 kg) at weeks 0 and 4. Two days after ustekinumab initiation suberythemal MED 311-nm UVB-based phototherapy was administered three times a week for 6 weeks. Initial dose was 70% of the individual's MED. This was increased by 0.1 Jcm^2 per session depending on the patient's erythemal reaction to the previous treatment Ustekinumab monotherapy Same regimen Patients were allowed to use topical emollients *ad libitum* except on treatment days, when their use was allowed only after 311-nm UVB treatment had been delivered.	**Disease-specific physician assessment: mean PASI reduction at 6 weeks (SD)** Combination: Baseline: 13.6 6 weeks: 2.5 Ustekinumab: Baseline: 13.3 6 weeks: 6.1 The difference was statistically significant and corresponded to an overall mean PASI reduction from baseline of 82% vs. 54%, respectively.	chose to receive total-body NB-UVB from week 7 to week 12, the remaining 5 continued per protocol. At week 12, the overall response continued to be greater on the body halves that had been irradiated during the first 6 weeks than on the unirradiated body halves, but the difference was not statistically significant for either mean PASI (2.1 vs. 2.8) or mean PASI reduction (85% vs. 79%). At week 12, PASI 75 was achieved more often on irradiated body halves than on unirradiated body halves [8⁄9 patients (89%) vs. 6⁄9 (67%)].
Penven K, *et al.* Evaluation of vaseline oil applied prior to UVB TL01 phototherapy in the treatment of psoriasis. *Photodermatol Photoimmunol Photomed* 2005; **21**:138-41. Prospective, single-blind, left-/right (with one to three symmetrical pairs of plaques selected), France	n=15 chronic plaque psoriasis (covering at least 20% of the skin) 6 F: 9 M Mean age (range): 47.6 years (16-80) Exclusion criteria: <10 years, phototype I, contra-indications to TL01 phototherapy	NB-UVB + Vaseline oil pre-treatment Vaseline oil was applicated at the quantity of 0.005 ml/cm^2 by a nurse, 5 min before phototherapy. UVB TL01-therapy was delivered three times a week, suitable for the phototype. NB-UVB monotherapy Same regimen	**Disease improvement: totally cleared** NB-UVB + Vaseline oil pre-treatment: 49% NB-UVB monotherapy: 17%	No specific treatment for psoriasis was allowed one month prior to the study and during the study. Total clearance was obtained with significantly less exposures when vaseline oil was used. Vaseline oil penetrates the intercellular space allowing

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
		The study ended when clearance of the psoriasis was obtained or when the patients had received 30 exposures.		an optical matching effect which increases the UV transmission.
Dawe RS, *et al.* A randomized controlled comparison of the efficacy of Dead Sea salt balneophototherapy vs. narrowband ultraviolet B monotherapy for chronic plaque psoriasis. *Br J Dermatol* 2005; **153**:613-9. Randomised, observer-blinded, paired (left/right) comparison, single centre (February 2002-February 2003), UK	n=60 chronic plaque psoriasis 33 F; 27 M Mean age (range): 38 years (19-79) Skin type: I (9), II (30), III (21)	Dead Sea (DS) salt solution + NB-UVB balneophototherapy The allocated limb was soaked in a solution of DS salt for 15 min and whole-body phototherapy then given. Starting dose based on MED determination, then three times weekly treatment with dose increments of 20% (reducing to 10%, adjusted according to individual erythemal responses to each treatment) NB-UVB monotherapy Same regimen On completion of the treatment course, patients were followed up every 8 weeks until relapse or for 1 year	**Disease improvement: 5% greater fall in mean area under the psoriasis severity–time curves (AUC)** DS salt + NB-UVB Mean AUC: 278 NB-UVB monotherapy Mean AUC: 292 95% CI for difference in means -32 to 3; P = 0.099) The addition of DS salt soaks to NB-UVB phototherapy did lead to a slightly greater fall (95% CI for difference in mean change in SEI score 0.087–0.91; P=0.019) in psoriasis severity	Attrition: 19; work or home commitments (6), failure to attend (4), clearance of psoriasis during an intercurrent holiday (3), intercurrent illnesses making attendance difficult (2), inadequate response to phototherapy and conversion to PUVA (2), pregnancy (1), severe itch immediately after DS salt soaks (1)

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E.2.2 Within-patient comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Köllner K, *et al.* Comparison of the 308-nm excimer laser and a 308-nm excimer lamp with 311-nm narrowband ultraviolet B in the treatment of psoriasis. *Br J Dermatol* 2005; **152**:750-4. Two separate studies, Individual plaques, Germany F/up 4 months	n=15 patch psoriasis 6 F: 9 M Mean age (range): 46 years (26-67) Skin types: I-III Site: upper extremities (9), lower extremities (5), trunk (1) Mean modified PSI (range): 9.6 (6-12) Inclusion criteria: ≥18 years, with stable plaque type psoriasis. All systemic and topical treatments had to have been stopped before the start of the study. Exclusion criteria: History of photosensitivity disorders and those taking medications known to cause photosensitivity.	311-nm NB-UVB Three times per week. The lesion was covered with an opaque foil with a 20-mm hole cut out. UVB doses were increased slowly and stepwise (1, 1, 2, 2, 3, 3, …multiple MEDs. If blistering occurred, the blistered plaque was not treated on the next scheduled treatment. 308-nm excimer laser Same regimen. The laser's spot size was fixed at 20 mm 308-nm excimer lamp Same regimen. The lesion was covered with an opaque foil with a 20-mm hole cut out. No additional treatment options were allowed.	**Disease improvement: Complete remission at 10 weeks** 311-nm NB-UVB: 7 Excimer lasers: 4 Excimer lamp: 3 **Treatment tolerability** Treatments were well tolerated by all the participants. **Minor adverse events: pigmentation, crusting, blistering, erythema** 311-nm NB-UVB: 26.7% Excimer lasers: 40.0% Excimer lamp: 26.7%	Mean cumulative dose of irradiation (range): NB-UVB: 64.9 J/cm^2 (23.8–131.0 J/cm^2) Excimer laser: 52.9 J/cm^2 (18.3–110.5 J/cm^2) Excimer lamp: 47.3 J/cm^2 (23.7–114.5 J/cm^2) **Mean PSI score 12 weeks** 311-nm NB-UVB: 1.1 Excimer lasers: 1.8 Excimer lamp: 2.13 *p* >0.05 **F/up 4 months: mean PSI score:** 311-nm NB-UVB: 1.6 Excimer lasers: 3.4 Excimer lamp: 2.3 *p* >0.05

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	n=16 chronic plaque psoriasis 7 F: 9 M Mean age (range): 48.5 years (33-71) Skin types: I-III, 69% (II) Mean modified PSI (range): 6.1 (4-11)	308-nm excimer laser One plaque was treated using partially overlapping spots three times a week, for eight weeks. Doses were increased by an accelerated scheme (2, 2, 4, 4, 6, 6, …multiple MEDs). UVB doses every second treatment (first and second regime) during the whole treatment. If blistering occurred, the blistered plaque was not treated on the next scheduled treatment. 308-nm excimer lamp Same regimen	**Disease improvement: PSI reduction at 8 weeks** 1.6 (0-3) for both treatments Mean number of treatments to achieve clearance was 13.5 **Minor adverse events: hyperpigmentation** Excimer lasers: 12 Excimer lamp: 11 **Blistering** Excimer lasers: 10 Excimer lamp: 7 Altogether, side-effects were seen more often in the laser treatment than in the 308-nm lamp treatment similar to the first regime.	Mean cumulative dose of irradiation (range): Excimer laser: 29.17 J/cm^2 (3.2-70.8 J/cm^2) Excimer lamp: 37.0 J/cm^2 (3.2-124.2 J/cm^2) **F/up 4 months: mean PSI score:** Decreased as only 4 patients participated regularly and have been still in remission
Wollina U, *et al.* Targeted 307 nm UVB-phototherapy in psoriasis. A pilot study comparing a 307 nm excimer light with topical dithranol. *Skin Res Technol* 2012; **18**:212-8. Open, non-blinded clinical pilot study, Germany Two target lesions of	n=21 moderate plaque psoriasis 6 F: 15 M Mean age (range): 51 years (26-84) Skin type: II or III Inclusion criteria: Adults with a recent relapse of first manifestation of moderate plaque-type psoriasis. No	NB-UVB Three times with 307 nm excimer light. Initial dose MED. Mean treatment interval was 9 days. Mean exposure per session was 20 seconds resulting in a mean total irradiation time of 37 seconds. Topical dithranol	**Disease-specific physician assessment: Mean PASI (SD)** NB-UVB Baseline: 7.5 (2.2) End of treatment: 4.6 (0.7) Topical dithranol Baseline: 6.9 (2.0) End of treatment: 3.0 (1.1)	Attrition: 2 The mean time needed to treat per session NB-UVB: 20 seconds Topical dithranol: 80 second The total mean time to treat: NB-UVB: 40 seconds Topical dithranol: 750 seconds

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
comparable size and plaque-modified PASI scores were selected	systemic therapy and at least two comparable target lesions in the same anatomical region of the trunk available. Exclusion criteria: <18 years, recent or concomitant systemic antipsoriatic treatment, intolerance to dithranol or UVB light, pregnancy, and lactation.	Twice daily with dithranol ointment in increasing dosages. Initial concentration of 0.1%. Dosage increase during the study period was done after 3 days to the individual maximum tolerable concentration up to 0.5%. Pre-treatment with moisturizers was allowed.	**Treatment tolerability** Tolerance was superior with targeted phototherapy. **Minor adverse events** NB-UVB mild-to-moderate erythema (11), temporary blistering (3) Topical dithranol All lesions demonstrated a perilesional irritation and staining.	Patients' satisfaction was high for targeted NB-UVB excimer light.
Jain V, *et al.* Comparative efficacy of narrow-band ultraviolet B phototherapy alone and its combination with topical 8-methoxypsoralen in psoriasis. *Indian J Dermatol Venereol Leprol* 2010; **76**:666-70. Prospective left-right study, single centre (August 2008-August 2009), India	n=30 chronic plaque psoriasis 10 F: 20 M Inclusion criteria: Stable plaque psoriasis not exceeding 50% of BSA involvement Exclusion criteria: <16 years of age, pregnant females or lactating mothers, those with renal or hepatic disease, photosensitivity or polymorphic light eruptions, already treated with oral retinoids, systemic therapy/PUVA within the	Combination NB-UVB and topical 8-methoxypsoralen NB-UVB was given twice weekly for 12 weeks. The target lesion on the right side was treated with 0.1% topical 8-MOP 15 minutes before the irradiation. Initial dose was 280 mJ/cm^2. The irradiation dose was increased by 20% of the previous dose on each subsequent visit. In case of mild erythema, the irradiation dose was held constant for subsequent treatments or until resolution of symptoms. If symptomatic erythema (burning, pain or blistering) developed, the irradiation	**Disease improvement: Percentage reduction in score** Combination >95%: 20 >75%-95%: 5 >50%-75%: 1 <50%: 3 Got worse: 1 NB-UVB >95%: 17 >75%-95%: 3 >50%-75%: 7 <50%: 3 **Treatment tolerability** Well by all the patients except one who developed	Target plaque scores mean (SD): Baseline: 7.52 (1.96) 4 weeks Combination 3.59 (2.15) NB-UVB: 4.17 (2.05) 8 weeks Combination 1.38 (1.54) NB-UVB: 2.24 (1.53) 4 weeks Combination 0.66 (1.14) NB-UVB: 0.03 (140) The difference in the mean target plaque scores was significant only at 8 weeks of treatment. The number of treatment sessions and cumulative NB-

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	previous 8 weeks, topical therapy/UVB phototherapy within the past 4 weeks or taking immunosuppressive agents.	dose was decreased by 50% of the burning dose and, thereafter, the dose was increased by 10% on subsequent visits NB-UVB Same regimen The side which achieved clearance first was occluded and NB-UVB was continued on the other side till clearance of target plaque or completion.	marked burning, oozing, erythema and crusting on the combination treated side and discontinued the treatment after seven treatment sessions. **Minor adverse events** Minor side-effects were higher on the combination side as compared with NB-UVB alone (mild erythema, itching, hyperpigmentation, burning)	UVB doses were lower in the combination therapy as compared with NB-UVB monotherapy, although the differences were not statistically significant.
Aggarwal P, *et al.* Tacalcitol: A useful adjunct to narrow band ultraviolet B phototherapy in psoriasis. *J Dermatolog Treat* 2016; **27**:546-51. Open-label, right-left intra-individual 12 week clinical trial, dermatology department (April 2013-October 2014), India Two plaques of psoriasis of approximately the same size were selected from similar sites	n=30 plaque psoriasis 8 F: 22 M Mean age: 39.36 years Inclusion criteria: ≥18 years, with chronic stable plaque psoriasis not exceeding 50% of BSA involvement Exclusion criteria: <18 years, pregnant females or lactating mothers, those with renal or hepatic disease, photosensitivity or polymorphic light eruptions, previous or current carcinoma of the skin or actinic keratosis. Patients who had used systemic	Combination NB-UVB and tacalcitol NB-UVB phototherapy was given thrice weekly on non-consecutive days. Initial dose was 280 mJ/cm^2. Dose incrementation was done according to the erythema response with regular 20% increments in case there was no erythema. Target lesions on the right side were treated topically with tacalcitol ointment once daily. This was applied after NB-UVB on treatment days. NB-UVB Same regimen	**Disease improvement: patients achieving target plaque clearance with therapy.** 2 weeks Combination: 0 NB-UVB: 0 4 weeks Combination: 1 (3.3%) NB-UVB: 0 6 weeks Combination: 13 (43.3%) NB-UVB: 4 (13.3%) 8 weeks Combination: 28 (93.3%) NB-UVB: 19 (63.3%)	Combination led to an earlier clearance of plaques and a better maintenance of the response than NB-UVB alone. Mean number of days for clearance (SD): Combination: 40.46 (10.601) NB-UVB: 54.63 (11.871) The number of treatment sessions and cumulative NB-UVB doses were significantly lower on the combination arm. Combination was also more efficacious in bringing down all the three parameters of erythema, scaling and

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
	antipsoriatic treatment or phototherapy within 2 months prior to the study or taking phototoxic drugs or drugs that might influence psoriasis; known hypercalcemia or hypersensitivity to tacalcitol and those having intolerance or previous failure to phototherapy.	Clearance of both sided target plaques (was taken as the end point of NB-UVB therapy sessions. The side which achieved clearance first was occluded and NB-UVB was continued on the other side till clearance of target plaque. Mean number of NB-UVB days required for clearance in the Combination arm was 40.46 ± 10.601 days and for NB-UVB arm 54.63 ± 11.871 days (*p*<0.001)	10 weeks Combination: 29 (96.7%) NB-UVB: 27 (90%) 12 weeks Combination: 28 (93.3%) NB-UVB: 21 (70%) **Minor adverse events** Diffuse hyperpigmentation, probably related to prolonged phototherapy, was noted in six patients, almost symmetrically over both sides. Mild itching was experienced on both the sides by 16 patients during the NB-UVB treatment sessions nearing their maximum NB-UVB dose.	thickness than NB-UVB alone, with a significant difference seen as early as 2 weeks and unto 6 weeks in erythema and thickness scores and at 6 weeks in scaling score. Mean number of NB-UVB sessions required for clearance in the combination arm was 18.00 ± 4.646 and the NB-UVB arm was 24.43 ± 4.811 (*p*<0.001). Mean cumulative doses of NB-UVB at clearance, in the combination arm was 20 014.86 ± 9279.858 mJ/cm^2 and in the NB-UVB arm was 34 278.96 ± 12 688.663 mJ/cm^2 (*p*<0.001).
Brazzelli V, *et al.* Non-invasive evaluation of tacalcitol plus PUVA versus tacalcitol plus UVB-NB in the treatment of psoriasis: "right-left intra-individual pre/post comparison design". *Int J Immunopathol Pharmacol* 2005; **18**:755-60 Right-left, intra-individual,	n= 40* chronic, stable plaque psoriasis, 20 treated with NB-UVB Mean age (range): 47 years (18-65) Exclusion criteria: pregnant or lactating women, patients with a history of abnormal UVA/ UVB sensitivity, patients taking	Combination NB-UVB and tacalcitol NB-UVB three times a week. Initial dose was as 180-200 ml/cm^2, depending on skin type with increments of about 50 ml/cm^2 each treatment up to the maximum tolerable dose. On those plaques localized on the right side of the body tacalcitol ointment was applied once a day, in	**Disease improvement:** Psoriasis cleared in all subjects and a significant decrease of the PASI score was documented at the end of the therapy. No significant differences were detected between the treatments. PUVA therapy was on	Attrition: 4 (2 NB-UVB, 2 PUVA) irregular attendance (2), defaulted for reasons unrelated to treatment (2) *the other 20 were treated with Combination PUVA and tacalcitol vs PUVA They had discontinued all other topical or systemic therapy one month before

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Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
pre/post comparison trial, Italy Two symmetrical lesions of similar size (4-10 cm in diameter) and severity located on knees or elbows were selected on each patient	photosensitizing drugs, patients needing systemic or topical treatment that might influence psoriasis (e.g. Lithium, β-blockers or systemic steroids, tacrolimus), patients with renal or liver dysfunction, patients with ocular diseases, patients with hypersensitivity to tacalcitol or 8-methoxypsoralen.	the evening. NB-UVB Same regimen, with white petrolatum applied to plaques on left side of the body	average as effective as UVB-NB (both as monotherapies and as combination therapies);	the beginning of the study.

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Appendix F: Skin diseases: Vitiligo

F.1: Summary of included studies

F.1.1 Systematic reviews

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Arora, C. J. *et al.* *Australas J Dermatol* 2020; **61**: e1-e9.	Yes	Yes	Yes (PubMed, Scopus, ISI Web of Science & Cochrane Central Register of Controlled Trials up to October 2018)	Yes	Yes	RCTs

Comments
A systematic review (PROSPERO CRD42018112430) to assess the efficacy and safety of tacrolimus either as monotherapy or in combination with another therapy, including NB-UVB for vitiligo. One of the outcome measures matches one of our outcomes.

Quality of the three RCTs that involved NB-UVB

- Random sequence generation showed an unclear risk of bias in two[312,313]
- Blinding of participants and personnel as well as blinding of outcome assessment showed a high risk of bias in one[312]
- Two of the three showed a low risk of bias relating to selective reporting[312,314]

Summary:
Three RCTs, including one within-patient, compared the combination of NB-UVB and tacrolimus with NB-UVB monotherapy.[312-314] The random-effects model meta-analysis of two RCTs revealed that the combination therapy was better than NB-UVB monotherapy in inducing >75% depigmentation [RR 1.34 (95% CI: 01.05–1.71), $p = 0.02$].[312,314] No significant heterogeneity was found between results [$I^2 = 7\%$, $p = 0.30$] In addition, the within-patient RCT also showed that the combination was superior to NB-UVB monotherapy.[313]

Conclusions (**which considering they didn't compare combination NB-UVB and tacrolimus to tacrolimus monotherapy are indirect**)

Combining tacrolimus with NB-UVB may be a superior option to using tacrolimus alone in achieving a higher depigmentation rate But, due to the clinical heterogeneity of the included studies and the high risk of bias in some of the studies, the authors did not draw any solid conclusions on the superiority of combination vs. monotherapy tacrolimus treatment.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Sakhiya, J. J. *et al.* *J Clin Diagn Res* 2019; **13**: WE01-WE11.	Yes	Yes	No – PubMed (2000-18), Science Direct (1985-2018, Cochrane Central Register of Controlled Trials (2005-2017), only used 3 keywords, restricted to English only	Yes	Yes	RCTs

Comments

A systematic review to compare the efficacy of NB-UVB in combination with topical agents (calcineurin inhibitors, antioxidants, corticosteroids, vitamin –D3 analogues and 5-fluorouracil) or lasers with NB-UVB monotherapy for vitiligo. One of the outcome measures listed could be matched to one of our outcomes, although 50%-74% repigmentation was specifically excluded.

Limitations, the small numbers of RCTs and heterogeneity among some of the included studies. Both RCTs with different patients on the two arms and within-patient studies were included in the same forest plots, also numbers of patients and patches, and three of the studies also allowed the use of topical steroids in addition to the comparisons, so weren't strictly NB-UVB monotherapy.

Quality of the 12 RCTs

- High risk of bias associated with generation (selection bias) and allocation concealment (selection bias) in 5/12 studies[79,315-318]
- High risk of bias associated with blinding of participants in 7/12 studies [79,315-320]
- High risk of bias associated with blinding of outcome assessors (detection bias) in 8/12 studies[69,72,315,316,318,319,321,322]
- Incomplete outcome data (attrition bias) in 2/12 studies[321,322]
- Selective reporting bias (reporting bias) in 3/12 studies[314,321,322]
- High risk associated with other biases in 2/12 studies[321,322]

Summary:

Twelve RCTs, with a total of 460 patches or patients were included. They investigated combining NB-UVB with topical calcineurin inhibitors, antioxidants,

fractional CO_2 laser, ER:YAG laser ablation, dermabrasion, calcipotriol ointment and 5-FU injection compared with NB-UVB monotherapy.

Three RCTs (n = 153), including one within-patient showed NB-UVB in combination with topical calcineurin inhibitors [tacrolimus (2), pimecolimus (1)] to be superior to NB-UVB monotherapy in achieving ≥75% depigmentation [RR = 1.79, 95% CI (1.06 - 3.01), *p* = 0.03].[72,314,321]

Two RCTs (n = 85) showed NB-UVB in combination with antioxidant therapy to be superior to NB-UVB monotherapy in achieving ≥75% depigmentation, however, this was not statistically significant [RR = 1.77, 95% CI (0.93 – 3.35), *p* = 0.08].[69,320] With one RCT all also received a betamethasome injection.

Three within-patient RCTs (n = 69) showed NB-UVB in combination with fractional CO_2 laser (10,600 nm) to be superior to NB-UVB monotherapy in achieving ≥75% depigmentation in two studies [RR = 7.00 (1.30 - 37.60), *p* = 0.02].[317,318,322] With one RCT all also received clobetasol propionate cream twice daily throughout. **This could explain the heterozygosity found but that wasn't investigated.**

One within patient RCT (n = 50) showed NB-UVB in combination with ER:YAG laser ablation and topical 5-FU to be superior to NB-UVB monotherapy in achieving ≥75% depigmentation [RR = 5.60, 95% CI (2.31 - 13.59), *p* = 0.0001].[315]

One within-patient RCT (n = 16) showed NB-UVB in combination with dermabrasion to be superior than NB-UVB monotherapy in achieving ≥75% depigmentation, but this was not statistically significant [RR = 5.00, 95% CI (0.26 - 96.59), *p* = 0.29].[316] All received topical clobetasol propionate as well.

One RCT showed NB-UVB monotherapy to be superior to NB-UVB in combination with calcipotriol ointment in achieving ≥75% depigmentation, but this was not statistically significant [RR = 0.67, 95% CI (0.21 - 2.08), *p* = 0.48]. [319]

One RCT (n = 60) showed NB-UVB in combination with 5-FU injection to be superior to NB-UVB monotherapy in achieving ≥75% depigmentation [RR = 7.25, 95% CI (2.71 - 19.36), *p* < 0.0001].[79]

The results suggested that combination therapy is superior compared to monotherapy in achieving ≥75% regimentation except for calcipotriol combined with NB-UVB. However, apart from the combination of antioxidant or topical calcineurin inhibitors with NB-UVB the other results are limited due to either small numbers of events or heterogeneity within the studies.

Conclusions
The combination of antioxidant or topical calcineurin inhibitors with NB-UVB appear to be superior to NB-UVB monotherapy in achieving ≥75% depigmentation in people with vitiligo. More large-scale, high-quality, double-blind RCTs regarding the efficacy of topical agents or lasers plus NB-UVB combination therapy are required.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the	The review collects the type of studies you consider relevant to the guideline review	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the	What types of studies are included in the review? (RCTs/cohort studies/mixed)

	guideline review question (Yes/No)	question (Yes/No)			question (Yes/No)	
Li, R. *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31.	Yes	Yes	Yes (up to March 2016) PubMed, EMBASE, Cochrane Library, Web of Science	Yes (Cochrane Collaboration risk-of-bias tool)	Yes	RCTs

Comments: A systematic review to examine combination of NB-UVB and topical agents would be superior to NB-UVB monotherapy for the treatment of vitiligo. Primary outcome was the proportion of ≥50% repigmentation, and secondary outcome was the proportion of ≥75% repigmentation. These outcomes match some of those in our protocol.

Summary: Seven RCTs involving 240 patients (413 lesions) were included.[72,314,319,321,323-325]

Three RCTs examined NB-UVB combined with topical calcineurin inhibitors (tacrolimus[321,325] or pimecrolimus[72]) vs NB-UVB monotherapy. The meta-analysis showed no significant difference between NB-UVB combination therapy and NB-UVB monotherapy in the outcomes of ≥50% repigmentation (RR = 1.22; 95% CI 0.88–1.68) and ≥75% repigmentation (n=2: RR 1.84, 95% CI 0.90–3.78).

Three RCTs examined NB-UVB combined with topical vitaminD3 analogs (tacalcitol[324] or calcipotriol[319,323]) vs NB-UVB monotherapy. The meta-analysis showed no significant difference between NB-UVB combination therapy and NB-UVB monotherapy in the outcomes of ≥50% repigmentation (RR = 1.50, 95% CI 0.75–2.99). One RCT also failed to show a significant difference for ≥75% repigmentation (RR 0.67, 95% CI 0.21–2.08).

Three RCTs examined the efficacy of NB-UVB combination with topical calcineurin inhibitors (tacrolimus[314,321] or pimecrolimus[72]) vs. NB-UVB monotherapy for vitiligo on the face and neck. Lesions located on the face and neck had a better ≥50% repigmentation and ≥75% repigmentation with NB-UVB and topical calcineurin inhibitor combination therapy compared to NB-UVB monotherapy (RR = 1.40, 95% CI 1.08–1.81) and (RR = 1.88, 95% CI 1.10–3.20) respectively.

Conclusion: The combination of NB-UVB and topical agents is not significantly superior to NB-UVB monotherapy. Although NB-UVB in combination with calcineurin inhibitors may increase treatment outcomes in vitiligo affecting the face and neck, the authors caution its use due to the increased risk of skin cancers.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)

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Bae, J. M. *JAMA Dermatol* 2017; **153**:666-74.	Yes	Yes	Yes (up to 26 January 2016) MEDLINE, EMBASE, Cochrane Library	Yes,	Yes	Prospective studies including RCTs, non-randomised clinical trials and open trials

Comments: A systematic review and meta-analysis to estimate the treatment response of vitiligo to phototherapy. Studies were excluded if they had less than 10 participants on each arm. The primary outcomes were at least mild (≥25%), at least moderate (≥50%), and marked (≥75%) responses on a quartile scale, some of which match the outcomes in our protocol.

Summary: Twenty-nine studies included 1201 patients undergoing NB-UVB phototherapy. Single-arm meta-analyses were performed. A marked response was achieved in 13.0% (95%CI, 2.1%-23.9%) of 106 patients in 2 studies at 3 months,[313,326] 19.2% (95%CI, 11.4%-27.0%) of 266 patients in 13 studies at 6 months,[69,70,319,321,326-334] and 35.7% (95%CI, 21.5%-49.9%) of 540 patients in 9 studies at 12 months.[326,335-342]

At least a moderate response was achieved in 31.1% (95%CI, 14.0%-48.1%) at 3 months, 37.4% (95%CI, 27.1%-47.8%) at 6 months and 56.8% (95%CI, 40.9%-72.6%) at 12 months.

In the subgroup analyses by body site, marked responses were achieved on the face and neck in 44.2% (95%CI, 24.2%-64.2%), on the trunk in 26.1% (95%CI, 8.7%-43.5%), on the extremities in 17.3% (95%CI, 8.2%-26.5%), and on the hands and feet in none after at least 6 months of NB-UVB phototherapy.

Conclusion: A longer treatment duration should be encouraged to enhance the treatment response, and a period of at least 6 months is required to assess the responsiveness to phototherapy. The overall treatment response to NB-UVB phototherapy was better than that to PUVA therapy. The most effective response is anticipated on the face and neck, whereas the hands and feet show minimal response.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Chen Y-J, *Complement Ther Med* 2016; **26**:21-7.	Yes	Yes	Yes (up to December 2015) MEDLINE, CENTRAL, Cochrane Database of Systematic Reviews, EBM Reviews, China National Knowledge Infrastructure (CNKI), Chinese Electronic Periodical Services	Yes	Yes	RCTs

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			(CEPS), Chinese Biomedical Literature Database, WANGFANG MED ONLINE			

Comments: A systematic review and meta-analysis to assess the effects of oral Chinese herbal medicine (CHM) combined with phototherapy for vitiligo. Primary outcomes were improvement/remission of vitiligo, treatment success was defined as ≥50% repigmentation of individual patches and severe adverse events (SAEs), SAE was defined as requiring withdrawal of treatment. Secondary outcomes included mild adverse events (not severe enough to require treatment cessation) and quality of life. These matched some of our outcomes.

Summary: A total of 5 RCTs with 513 participants which assessed the efficacy of NB-UVB in combination with oral CHM (Baiban chong ji, Shou-wu-sheng-hei-tang, Zi-ni-bai-ling-fang, Yeh's formula, and Qu-bai-xiao-ban tang) were included. NB: All in Chinese journals not indexed in MEDLINE or EMBASE. The overall quality of included trials was low. None of the 5 trials reported details of randomization or adequate allocation concealment. No trials performed blinding of participants, mentioned blinding of outcome assessment nor mentioned adequacy of follow-ups.

The meta-analysis revealed a superior effectiveness (≥50 repigmentation) in those receiving NB-UVB plus oral CHM when compared to NB-UVB alone (risk difference 0.22, 95% CI 0.14 to 0.29, $p < 0.00001$).

No SAEs were reported, only mild adverse events without significant renal or liver function impairment.

None of the included trials reported quality of life.

Conclusions: The current evidence demonstrates that NB-UVB in combination with oral CHM has a superior effectiveness in terms of repigmentation rate of vitiligo when compared to NB-UVB alone. Although the overall quality of included trials was low, oral CHM in combination with NB-UVB may be an alternative option of treatment for vitiligo. As to safety, there were only mild adverse events reported without significant renal or liver function impairment. However, there is limited available evidence of long-term follow-up and poor methodological quality of the available trials. Well-designed RCTs of adequate length and sample size that include life quality as an outcome are warranted.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Lopes, C. *Am J Clin Dermatol* 2016; **17**:23-32.	Yes	Yes	Yes (up to March 2015) Pubmed, EMBASE, LILAC, CENTRAL	Yes	Yes	RCTs

DRAFT

Comments: A systematic review and meta-analysis comparing the efficacy and adverse effects of monochromatic excimer lamps versus excimer laser and NB-UVB in treating vitiligo. The primary outcomes assessed were 50% and 75% repigmentation of lesions and adverse effects (blistering, burning sensation, pruritus) with the different devices. Secondary outcome was quality of life measured with a validated tool (e.g., the Dermatology Quality of Life Index or the World Health Organization Quality of Life instrument). These matched some of our outcomes.

Summary: Three studies compared conventional NB-UVB with excimer lamp (308-nm MEL)[343-345] two were within-patient.[343,344] A 308-nm xenon chloride MEL delivery system was used that irradiates skin with an average power density of 50 mW/cm^2 at a tube-to-skin distance of 15 cm and with a maximum rectangular irradiating area of 576 cm^2 (36 cm × 16 cm).

Treatments were given to the randomised side twice a week on non-consecutive days for a period of 6 months. For both modalities, the initial dose was 70% of the MED determined before treatment. Dose increments were 40% from treatment 1 to 4, 30% from 4 to 8, and 20% constantly from treatment 8 onwards, until faint erythema was obtained. If symptomatic erythema or blistering developed, treatment was omitted (once or twice), and, when treatment was resumed, the last dose was decreased by 20%. Mean cumulative dose was 56.08 J/cm^2 (range 12.3-80.6) for TL01 and 41.39 J/cm^2 (range 15-59.1) for MEL.[343]

Treatments were given to a specific lesion twice a week on non-consecutive days for a period of 24 treatment sessions. The initial dose for both devices was 400 mJ/cm ^{2} At each treatment session, the dose was increased by 100 mJ/cm^2. If minimal asymptomatic erythema appeared, the dose was kept constant. If symptomatic erythema (burning, pain) or blistering developed, treatment was interrupted until clearance of the symptoms and resumed at a dose 100 mJ/cm^2 less than that of the last treatment session. Mean of 9.8 treatment sessions (range 6–14) and after a mean cumulative dose of 8.1 J/ cm^2 (range 3.4–13.8) for NB-UVB and.mean of 13 treatment sessions (range 6–21), and after a mean cumulative dose of 12.9 J/cm^2 (range 3.2–29.4) for MEL.[344]

All three studies were eligible for meta-analysis for the outcome of ≥50 % repigmentation; none of the three found any difference between the two devices (RR = 1.14, 95 % CI 0.88–1.48). Two of the studies were eligible for meta-analysis for the outcome of ≥75 % repigmentation and also found no difference between the devices (RR = 1.81, 95 % CI 0.11–29.52).[343,344] None of the studies assessed the secondary outcome (quality of life).

Adverse effects were mild, including pruritus, burning sensation, and dryness, none of which interrupted treatment.

Conclusions: NB-UVB, excimer lamps and excimer laser are all safe and effective in repigmentation of vitiligo lesions. Safety, effectiveness, and cost are considerations when choosing treatment.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Xiao, B.-H. *J*			Yes (up to November 2013)			

Dermatolog Treat 2015; **26**:340-6.	Yes	Yes	PubMed & Cochrane Library	Yes	Yes	RCTs

Comments: A systematic review to assess the effect and safety of NB-UVB for vitiligo. Primary outcome was repigmentation degree (>50%, >60% or >75%). Secondary outcomes included (1) adverse effects (2) mean sessions of initial response (3) cumulative dose of total phototherapy or cumulative dose of initial response. Some of these matched some of our outcomes. NB: The x axis on the forest plots have been incorrectly labelled.

Summary: Seven RCTs involving 232 participants were included. The overall quality of the included studies was moderate.

Two studies compared NB-UVB with UVA (n=80), no significant difference was observed between the two methods on the number of patients who achieved >60% repigmentation (RR = 2.50, 95%CI 0.11-56.97, *p*>0.05).[334,346]

Two studies compared NB-UVB with PUVA (n=104, no significant difference was observed between the two methods on the number of patients who achieved >50% repigmentation (RR = 1.16, 95%CI 0.64-2.11, *p*>0.05 or >75% repigmentation (RR=2.00, 95% CL 0.89-4.48, *p*>0.05).[68,339]

Three within patient studies compared NB-UVB with 308-nm excimer light/laser (EL) (n=48), two using light and one laser.[343,344,347] The meta-analysis results of the two studies using light showed no significant difference found between the two methods on the number of patients who achieved >50% repigmentation (RR, 1.10; 95% CI 0.16-7.72, p > 0.05) and >75% repigmentation (RR = 0.55, 95% CI 0.03-9.01; p > 0.05).[343,344] There was also no significant difference in the number of patients who achieved >50% repigmentation in the study using laser.[347]

Adverse events on the NB-UVB arm were slight and tolerated.

Conclusion: NB-UVB showed equivalent efficacies to UVA, PUVA or 308-nm EL. More RCTs of high quality are needed to validate these results.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Whitton, M. E. *Cochrane Database Syst Rev* 2015:Cd003263	Yes	Yes	Yes (up to October 2013) Cochrane Skin Group Specialised Register, CENTRAL, MEDLINE, EMBASE, AMED, PsycINFO, CINAHL, LILACS and five trials databases	Yes	Yes	RCTs

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Comments: An update to the 2010 systematic review to assess the effects of all therapeutic interventions, including NB-UVB used in the management of vitiligo. None of the studies had long-term follow-up beyond two years and only seven studies looked specifically at interventions for vitiligo in children. Primary outcomes: Quality of life measured using a validated tool e.g. DLQI, CDLQI, Skindex-29, more than 75% repigmentation of individual patches or of total body surface area and adverse effects. Some of these matched some of our outcomes. None of the secondary outcomes matched ours.

Summary: This update includes 96 studies, 57 from the previous update and 39 new studies, totalling 4512 participants. NB-UVB light was used in 35, (18 new this update, 17 from previous versions) either alone or in combination with other therapies and achieved the best results. Most of the studies had fewer than 50 participants and the design and reporting of trials had not greatly improved since the last update. Poor design, the number and complexity of the treatments and the fact that many of the studies assessed individual vitiligo patches in the same participant, made comparison of the studies difficult.

Most of the studies assessed combination therapies which generally reported better results. The new light therapies consisted of NB-UVB plus oral psoralen,[348] and needling plus NB-UVB.[349] New combination treatments included NB-UVB plus topical pseudocatalase cream[350] NB-UVB in combination with tacrolimus cream,[313] targeted NB-UVB plus tetrahydrocurcuminoid cream NB-UVB[351] and needling plus NB-UVB.[349] Finally, one new study assessed NB-UVB plus ablative fractional CO_2 laser.[322]

In this update only one small study (n=47) comparing NB-UVB plus oral minipulse of prednisolone (OMP) versus OMP monotherapy achieved statistically significant increased risks of >75% repigmentation (RR 7.41, 95% CI 1.03 to 53.26).[68]

One meta-analysis of three studies found a 60% increase in the proportion of participants achieving >75% repigmentation in favour of NB-UVB compared to PUVA.[331,333,339] This was not statistically significant (RR 1.60, 95% CI 0.74 to 3.45; I^2 = 0%).

Two analyses from a pooled analysis of three studies on adverse effects where NB-UVB was compared to PUVA showed the NB-UVB group reported less observations of nausea in three studies (RR 0.13, 95% CI 0.02 to 0.69; I^2 = 0% three studies, N = 156) and erythema in two studies (RR 0.73, 95% CI 0.55 to 0.98; I^2 = 0%, two studies, N = 106), but not itching in two studies (RR 0.57, 95% CI 0.20 to 1.60; I^2 = 0%, two studies, n = 106).

Four studies assessed quality of life, three used DLQI.[331,352,353] and one Skindex-29.[354] None showed a statistically significant result. The majority of studies do not really assess this important outcome adequately, if at all.

Conclusion: This review found some evidence that combination therapies, particularly those involving some form of light, are superior to monotherapies, but the usefulness of the findings is limited by the different designs and outcome measurements and lack of quality of life measures. There is a need for follow-up studies to assess permanence of repigmentation as well as high-quality randomised trials using standardised measures and which also address quality of life.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review	The review collects the type of studies you consider relevant to the guideline review question	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)

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	question (Yes/No)	(Yes/No)				
Sun, Y. *J Dermatolog Treat* 2015; **26**:347-53.	Yes	Yes	Yes (up to August 2014) PubMed, EMBASE, CBMdisc, CNKI, Wanfang, CQVIP	Yes	Yes	RCTs

Comments: A systematic review to assess the effect and safety of 308-nm excimer laser for vitiligo. NB-UVB was the comparator in some cases. Primary outcome was repigmentation degree (≥50%, ≥75% or ≥100%). Secondary outcomes included (1) side effects (2) repigmentation scores (3) cumulative UV dose. Some of these matched some of our outcomes. NB: The x axis on the forest plots have been incorrectly labelled, the identification of the papers in the forest plots also leaves something to be desired.

Summary: Seven studies were included, in four cases the comparator was NB-UVB with 294 patients.[347,355-357] The ethnicity was European for the one within-patient study and Chinese for the other three RCTs.

No significant differences were seen between NB-UVB and 308-nm excimer laser on ≥75% repigmentation. However, less patients or lesions achieved ≥50% repigmentation rate with NB-UVB than with 308-nm excimer laser (two studies: RR 1.39, 95% CI 1.05-1.85; p = 0.002)[355,357] or lesions (one study: RR 1.41, 95% CI 1.09-1.82; p = 0.009)[357]

Side effects were similar, minimal and tolerable for both treatments. The most common ones were erythema, itching, burning and blister.

Conclusions: NB-UVB showed equivalent efficacies to 308-nm excimer laser for ≥75% repigmentation rate for vitiligo patches. More studies with high methodological quality, low risk of bias and larger sample size are required to confirm this conclusion.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Matin, R. *BMJ Clin Evid* 2011; **2011**	Yes	Yes	Yes (up to March 2010) MEDLINE, EMBASE, Cochrane Library, Database of Abstracts of Reviews of Effects (DARE), Health Technology Assessment (HTA)	Yes (GRADE)	Yes	Mixed (SRs, RCTs and observational studies)

Comments: A systematic review to assess the effects of all therapeutic interventions, including NB-UVB used in the management of vitiligo in adults and

children. Inclusion criteria were at least single blinded and containing >20 individuals of whom >80% were followed up. Outcomes reported were those in the papers selected including degree of repigmentation (50%, 75%), percentage repigmentation, development of new lesions of vitiligo, and arrest of vitiligo spread and adverse effects. Some of these matched some of our outcomes.

Summary: Twenty-five studies were identified, including 8 that looked at NB-UVB. The evidence from these studies was rated as low or very-low quality.

NB-UVB versus placebo: One within-patient controlled trial including 22 participants, which found that, compared with placebo, NB-UVB significantly increased mean repigmentation of affected lesions after 6 months (43% with NB-UVB vs. 3% with placebo; *P* <0.001; absolute numbers not reported).[328] Lower extremities responded best, but feet responded worst. One person withdrew from the study with mild phototoxic effects.

NB-UVB versus topical PUVA: One quasi-RCT including 106 people (age range 7-70 years) found that NB-UVB increased repigmentation of vitiliginous lesions at 4 months (67% with NB-UVB vs. 46% with PUVA).[326] Better repigmentation was observed on the face than on the trunk, with very little on the extremities. This RCT did not report any adverse effects with NB-UVB treatment, but erythema, scaling and itching with PUVA.

NB-UVB versus oral PUVA: A systematic review,[358] since updated see above[62] identified one RCT (56 adults) which found no significant difference in repigmentation rates at the end of treatment (36% with NB-UVB vs. 64% with oral PUVA; RR 0.50, 95% CI 0.10 to 2.49; *p* = 0.4).[331] However, the RCT commented that people in the oral PUVA-treated group received a significantly smaller median number of treatments compared with the NB-UVB-treated group, and so results should be interpreted with caution

NB-UVB plus vitamin D analogues versus NB-UVB monotherapy: One systematic review[358] identified one RCT,[323] and one additional RCT was identified.[359]

One RCT (40 people) in the SR compared NB-UVB plus topical calcipotriol vs. NB-UVB monotherapy.[323] It found no significant difference in achieving >25% repigmentation (77% with NB-UVB plus calcipotriol plus vs. 79% with NB-UVB monotherapy; *p* value not reported).

A within-patient RCT (20 people, age range 14-49 years), found no significant difference in repigmentation of lesions between NB-UVB plus calcipotriol and NB-UVB monotherapy(numbers not reported; *p* >0.05).[359] The total number of people in the RCT achieving >50% repigmentation, irrespective of calcipotriol, was 55%.

NB-UVB plus pimecrolimus versus NB-UVB monotherapy: A systematic review[358] identified one RCT (68 people, age range 15-72 years), which found no significant difference in the rate of repigmentation between the two treatments at 3 months.[72] However follow-up was only 73%.

NB-UVB plus topical tacalcitol versus NB-UVB monotherapy: A systematic review[358] identified one RCT (32 people), which found significantly higher repigmentation scores at 6 months in people treated with NB-UVB plus topical tacalcitol vs. NB-UVB monotherapy (numbers not reported; *p* <0.0005).[324] Minimal adverse effects (mild erythema and itching) were reported in the combination therapy group.

No direct information from RCTs about the effects of NB-UVB in children with vitiligo was identified. One prospective cohort study (51 children, age range 4–16 years) found that NB-UVB resulted in >75% repigmentation at 1 year in about half the participants (53% with NB-UVB).[335] The best response was seen on the face and neck, with the poorest response seen in the acral sites (fingers, feet), areas of bony prominences, and areas of lower hair-growth density

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(wrists, ankles, joints). The study reported pruritus (8%) and xerosis with thickening of lesional skin (10%). The safe duration of narrowband UVB and maximum cumulative dose compared with other treatment modalities remains undetermined, but the consensus is that NB-UVB is safe and effective in children and may improve quality of life.

Conclusion: Despite only weak RCT evidence to support the use of NB-UVB, it is considered safe and effective by clinicians in the treatment of generalised vitiligo. Because it has relatively few adverse effects, it is considered to be the first-line treatment of choice for people with moderate or severe generalised disease. One report recommended (on the basis of a number of case series only) a minimum treatment duration of 6 months with responsive people, with a maximum treatment duration of 24 months.[360] After the first course of 1 year, a resting period of 3 months was recommended, to minimise the annual cumulative dose of UVB. Further research is necessary to determine the relative effectiveness of different treatment regimens.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Yes	Yes	Yes (January 1966-June 2004 PubMed)	Yes (GRADE)	Yes	RCTs, open prospective studies and retrospective observations

Comments: Systematic review on the therapeutic use of NB-UVB for skin disorders other than psoriasis. Open prospective studies with <5 patients and retrospective observations on less than 15 patients (per diagnosis) were excluded. Reports on non-conventional NB-UVB such as NB-UVB microphototherapy or similar UV sources such as 308 nm UVB excimer laser therapy were not included.

Summary: Seven studies were identified (n=305), including 2 RCTs,[328,353] 3 open prospective studies[326,335,361] and 2 retrospective observations.[127,362]

This included an open trial on 51 children with generalised vitiligo treated twice weekly for the maximum period of 1 year.[335] More than 75% overall repigmentation was seen in 27 patients (53%) after a mean number of 78.3 treatments (mean cumulative dose 91.3 J/cm^2). Only mild and transient adverse effects were seen.

Conclusion: The best currently available data on NB-UVB in non-psoriatic conditions exist for AD and generalised vitiligo. In view of its efficacy, benefit/risk profile, and costs, NB-UVB may be considered the first-line photo(chemo)therapeutic option for widespread vitiligo.

STUDY	The review addresses an appropriate and	The review collects the type of studies	The literature search is sufficiently rigorous to identify all the relevant studies	Study quality is assessed and reported	An adequate description of the methodology used is	What types of studies are included in the review?

	clearly focused question that is relevant to the guideline review question (Yes/No)	you consider relevant to the guideline review question (Yes/No)	(Yes/No)	(Yes/No)	included, and the methods used are appropriate to the question (Yes/No)	(RCTs/cohort studies/mixed)
Njoo, M. D.*Arch Dermatol* 1998; **134**:1532-40.	Yes	Yes	Yes (January 1966 to December 1997) MEDLINE, EMBASE	No	Yes	RCTs and nonrandomised controlled trials

Comments: A meta-analysis to the effectiveness and safety of nonsurgical repigmentation therapies, including NB-UVB in localized and generalized vitiligo. Localized vitiligo was defined as vitiligo affecting less than 20% of the total body surface. Combination therapies were excluded. Treatment was regarded as successful when more than 75% repigmentation was achieved.

Summary: There were no RCTs identified for NB-UVB in either localized and generalized vitiligo. Only one non-randomised trial was included for generalized vitiligo.

In the non-randomised controlled trails, the highest mean success rates were achieved with NB-UVB (63%; 95% CI, 50%-76%), BB-UVB (57%; 95% CI, 29%-82%), and oral methoxsalen plus UVA therapy (51%; 95% CI, 46%-56%). No side effects were reported with UVB therapy.

Conclusions: UVB therapy and class 3 corticosteroids are the most effective and safest therapies for generalized and for localized vitiligo, respectively.

F.1.2 Randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments

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Thomas KS *et al. Br J Dermatol* 2020; doi:10.1111/bjd.19592 & Batchelor JM *et al. Health Technol Assess* 2020; **24**: 1-128. RCT, ISRCTN17160087, multicentre delivered in secondary care across 16 hospitals (9 months treatment, 12 months follow-up), UK	n=517 non-segmental vitiligo (398 adults, 119 children) Combination 70 F: 105 M 135 adults: 40 children Mean age (SD): all 37.0 (19.1) years; adults 44.8 (14.2) years; children 10.6 (3.3) years Skin type: I (5), II (29), III (59), IV (33), V (44), VI (5) Ethnicity: White (104), Indian (10), Pakistani (27), Bangladeshi (4), Black (7), Chinese (1), other Asian (6), Mixed race (6), other (9), not stated (1) Target patch location: head/neck (56), hands/feet (55), rest of body (64) Number of assessed patches*: 1 (62), 2 (73), 3 (40) NB-UVB 81 F: 88 M 130 adults: 39 children Mean age (SD): all 36.9 (18.9)	Combination home based hand-held NB-UVB and topical corticosteroid (TCS) (175) TCS (0.1% mometasone furoate) applied once a day on alternating weeks, NB-UVB admistered alternative days in escaling doses, adjusted for erythema Home-based hand-held NB-UVB plus placebo TCS (169) Same regimen Home-based dummy hand-held device plus TCS (173) Same regimen	**Disease improvement (≥50% repigmentation) 9 months** Combination: 35/175 NB-UVB: 29/169 TCS: 16/173 **Disease-specific physician assessment (VAS) (9 months)** Combination 32/175 NB-UVB: 22/169 TCS: 12/173 **Disease-specific patient self-assessment (target patch) (9 months)** Combination 34/175 NB-UVB: 27/169 TCS: 20/173	Attrition: 147 (28.4%) at 9 months, 293 (56.7%) at 21 months *Participants selected up to three patches of vitiligo for assessment; one on each of three anatomical regions (head and neck; hands and feet; rest of body). One active patch was selected as the target for primary outcome assessment. **Disease improvement (≥75% repigmentation) 9 months** Combination: 21/175 NB-UVB: 11/169 TCS: 10/173 **Serious adverse events:** 5, but none related to trial interventions. **Change in psychological well-being/quality of life (9 & 21 months):** no difference between groups in any of the generic or vitiligo-specific QofL instruments at any time-point

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	years; adults 44.7 (14.0) years; children 10.8 (3.5) years Skin type: I (2), II (32), III (66), IV (34), V (25), VI (10) Ethnicity: White (114), Indian (13), Pakistani (15), Bangladeshi (4), Black (3), Chinese (1), other Asian (6), Mixed race (6), other (7) Target patch location: head/neck (52), hands/feet (53), rest of body (64) Number of assessed patches*: 1 (50), 2 (77), 3 (42) TCS 98 F: 75 M 133 adults: 40 children Mean age (SD): all 38.6 (20.0) years; adults 46.7 (15.2) years; children 11.7 (3.7) years Skin type: I (2), II (31), III (70), IV (29), V (35), VI (6) Ethnicity: White (112), Indian (13), Pakistani (12), Bangladeshi (4), Black (5), Chinese (2), other Asian (5), Mixed race (9), other (10), not stated (1) Target patch location: head/neck (53), hands/feet (56), rest of body (64) Number of assessed patches*: 1 (50), 2 (74), 3 (49)		**Sustained clearance/ benefit (21 months) not reported but the opposite 'loss of response' was, so that has been used.** **Loss of response (for those with treatment success at 9 months)** Combination: 14/30 NB-UVB: 10/26 TCS: 6/18 **Minor adverse events: erythema 3/4** Adults Combination 26/135 NB-UVB: 20/130 Children Combination 7/40 NB-UVB: 6/39 Not applicable for TCS	**Sustained clearance/ benefit (21 months) not reported but opposite 'loss of response was.** **Loss of response (all)** Combination: 49/114 NB-UVB: 50/116 TCS: 50/108 **Treatment tolerability:** both interventions were well tolerated. Post-hoc exploration of treatment response by skin type (I-III vs IV-VI) found no differences between the groups. Burden of treatment and side effects along with lack of treatment response were common reasons for discontinuation of treatment

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	Inclusion criteria: aged ≥5 years with active vitiligo affecting <10% of skin			
Eleftheriadou V, *et al. Trials* 2014; **15**:51. Pilot RCT, NCT01478945, two centres (recruitment March-May 2012, treatment June-September), UK	n=29 non-segmental, spreading or stable vitiligo with 84 representative lesions NB-UVB: 10 F: 9 M Mean age (range): 27.63 years (5-71) Ethnicity: white (12), Mixed race (1), Black (2), Indian (1), Pakistani (1), Asian (1), other (1) Mean BSA coverage (SD): 9.84% (5.96) Mean size (SD): 15.42 cm^2 (20.2) Mean DLQI (SD): 2.8 (3.2) Placebo: 5 F: 5 M Mean age (range): 39.4 years (13-51) Ethnicity: white (8), Indian (1), Asian (1) Mean BSA coverage (SD): 14.01% (8.5) Mean size (SD): 20.54 cm^2 (19.4) Mean DLQI (SD): 3.8 (3.2)	Hand-held NB-UVB unit (active) (19) randomized to the Dermfix or Waldmann device. Treatment was self-administered by the participants or their carers on alternate days, i.e., three to four times a week but never on consecutive days for 4 months. Each participant received a personalised treatment plan according to his/ her Fitzpatrick skin type: I, II, III, and IV–VI Hand-held NB-UVB unit (placebo) (10) Identical to the Dermfix 1000 device, with a plastic cover blocking the emission of the NB-UVB rays. Same regimen No other concurrent vitiligo treatments during the trial were allowed	**Disease improvement: ≥50% repigmentation** 4 months NB-UVB: 2 (both ≥75%) Placebo: 0 **Disease-specific patient self-assessment: patient Benefit index (PBI)** 4 months NB-UVB: Mean (SD): 0.92 (1.16) Placebo: Mean (SD): 0.91 (0.99) **Minor adverse effects: erythema** Over the 4 months NB-UVB: 5 (2 (4), 3 (1) Placebo: 0) **Minor adverse effects: pruritus** NB-UVB: 2	Attrition:4 withdrew from the treatment (3: 2 NB-UVB, 1 placebo), lost to follow-up (1) NB-UVB (week 16) Mean size (SD): 14.43 cm^2 (18) Placebo (week 16) Mean size (SD): 21 cm^2 (20.85) Overall, the anatomical sites which responded best to treatment were the face and neck. **Change in psychological well-being: DLQI** Little change at week 16 NB-UVB Mean (SD): 3.2 (2.3) Placebo Mean (SD): 3.7 (3.8)

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	Inclusion criteria: older than 5 years, vitiligo (confirmed by a dermatologist), affecting <25% of their BSA Exclusion criteria: Sgmental or universal vitiligo, previous history of skin cancer, recent/concurrent radiotherapy, photosensitivity, use of immunosuppressive or photosensitive drugs, pregnant or lactating women, major medical co-morbidities, vitiligo limited to the genitalia only; received therapy for vitiligo in the previous two weeks		Placebo: 0 **Minor adverse effects: hyperpigmentation** NB-UVB: 3 Placebo: 0 **Minor adverse effects: dry skin** NB-UVB: 3 Placebo: 0 **Minor adverse effects: cold sores** NB-UVB: 1 Placebo: 0	
Siadat AH, *et al.* Narrow-Band Ultraviolet B versus Oral Minocycline in Treatment of Unstable Vitiligo: A Prospective Comparative Trial. *Dermatol Res Pract* 2014; **2014**:240856. RCT, dermatology clinic, Iran	n=42 clinically diagnosed unstable vitiligo vulgaris NB-UVB arm 13 F: 8 M Mean age (SD): 27.6 years (9.4) Skin type: III (16), IV (5) Mean BSI (SD): 30.5 (10.5) Baseline VIDA score: +4 (6), +3 (5), +4 (4), +1 (6) Oral minocycline arm 11 F: 10 M	NB-UVB (21) Twice a week on non-consecutive days, for 3 months Oral Minocycline (21) Minocycline 100 mg once daily, for 3 months	**Disease-specific physician assessment: Vitiligo disease activity score (VIDA) 0, -1 after 12 months** NB-UVB: 16 Oral minocycline: 7	All patients had stopped any method of therapy at least 3 months before entering the study Disease activity / VIDA Active in past 6 weeks: +4 Active in past 3 months: +3 Active in past 6 months: +2 Active in past year: +1 Stable for at least a year: 0 Stable for at least a year and spontaneous repigmentation: -1

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<table>
<tr>
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<td>Mean age (SD): 25.4 years (10.3)
Skin type: III (18), IV (3)
Mean BSA (SD): 35.5 (11.5)
Baseline VIDA score: +4 (4), +3 (5), +2 (6), +1 (6)

Exclusion criteria: age ≤ 8years or ≥50 years; pregnancy or intention to become pregnant; breastfeeding; other severe systemic diseases, for example, cardiovascular, renal, and hepatic failure; segmental vitiligo; acral vitiligo, taking any other vitiligo treatment within the previous 3 months; history of having taken any medication that could interact with minocycline (e.g., isotretinoin, oral contraceptive pills, etc.) within the previous 3 months; history of photomediated disorders such as systemic lupus erythematous and xeroderma pigmentosum (XP) and known hypersensitivity to the study medication.</td>
<td></td>
<td>Minor adverse events

NB-UVB: 0
Oral minocycline: 3 (oral mucosal pigmentation, gastrointestinal complaint, and headache)</td>
<td>
<table>
<tr><td colspan="3">End of therapy VIDA score</td></tr>
<tr><td></td><td>NB-UVB</td><td>Minocyclline</td></tr>
<tr><td>+4</td><td>0</td><td>2</td></tr>
<tr><td>+3</td><td>0</td><td>5</td></tr>
<tr><td>+2</td><td>3</td><td>4</td></tr>
<tr><td>+1</td><td>2</td><td>3</td></tr>
<tr><td>0</td><td>10</td><td>3</td></tr>
<tr><td>-1</td><td>6</td><td>4</td></tr>
</table>

Disease stabilization was more frequent in the NB-UVB group compared with the oral minocycline group (P = 0.019).
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Lim HW, *et al. JAMA Dermatol* 2015; **151**:42-50. RCT, NCT01430195. 3 centres (2 academic, 1 private), USA	n= 55 non-segmental vitiligo Combination NB-UVB + afamelanotide 17 F: 11 M Mean age (range): 46.5 years (18-79) Fitzpatrick SPT: III (9), IV (5), V (8), VI (6) Race: White (7), African (9), Hispanic (6), Asian (2), Native American/Alaska native (1), other (3) NB-UVB monotherapy 17 F: 10 M Mean age (range): 46.1 years (23-67) Fitzpatrick SPT: III (11), IV (4), V (6), VI (6) Race: White (11), African (10), Hispanic (2), Asian (1), other (3) Inclusion criteria: ≥18 years, confirmed diagnosis of non-segmental vitiligo involving 15% to 50% of total lBSA, stable or slowly progressive vitiligo during a 3-month period, and Fitzpatrick skin phototypes (SPT) III to VI.	Combination NB-UVB + afamelanotide (28) NB-UVB 2 to 3 times weekly for 6 months (minimum of 10 treatments per month, up to a maximum of 72 treatments). After 1 month, 16 mg of afamelanotide was administered subcutaneously monthly for 4 months while NB-UVB continued NB-UVB monotherapy (27) Same regimen There will be a 6-month f/up period, but the results reported in this paper were at the end of the treatment period	**Serious adverse events** Combination: 1 (hypertension: not related to drug – patient had known history) Monotherapy: 0 **Minor adverse events: any*** Combination: 23 Monotherapy: 25 **Minor adverse events: Pruritus** Combination: 2 Monotherapy: 2	Attrition ITT: 2, one from each arm at 28 days However, 14 failed to complete the treatment, combination 11, monotherapy 3 *includes skin and subcutaneous disorders, nausea (5), fatigue 93), folliculitis (2), nasopharyngitis (3), hematuria (2), proteinuria (2), metabolism and nutrition disorders (3), hypertension (1) **Disease-specific physician assessment: Vitiligo Area Scoring index (VASI) reduction** Day 168 Combination: 48.64% (95% CI 39.49%-57.80%) Monotherapy: 33.26% (95% CI 24.18%-42.33%) **Disease-specific physician assessment: Vitiligo European Task Force score (VETF): statistically significant improvement** Combination: at day 56

	Exclusion criteria: SPT I or II, vitiligo involving the hands and feet only, extensive leukotrichia, previous treatment with NB–UVB phototherapy within 6 months, lack of response to previous NB–UVB phototherapy, allergy to afamelanotide or the polymer contained in the implant, allergy to lidocaine hydrochloride or any other local anesthetic to be used during the administration of the implant, current or previous treatment with topical immunomodulators within 4 weeks of the screening visit, history of photosensitivity disorders or photosensitive		**Minor adverse events: Hyperpigmentation** Combination: 2 Monotherapy: 0	Monotherapy: at day 84 Mean time to achieve repigmentation: Face Combination: 41.0 days Monotherapy: 61.0 days *P*=0.001 Upper extremities Combination: 46.0 days Monotherapy: 69.0 days *P*=0.003 Although a similar trend was observed for the trunk and lower extremities, the differences did not reach statistical significance *P* >0.05.

	lupus, history of claustrophobia, history of any active and/or unstable autoimmune disease judged to be clinically significant by the investigator, history of melanoma or lentigo maligna, history of dysplastic nevus syndrome, the presence of any malignant skin lesions, any skin disease that may interfere with the study evaluation, childbearing potential (for female patients), and use of any current or prior therapy that may interfere with the objective of the study within 60 days before the screening visit.		**Minor adverse events: Skin burning sensation** Combination: 1 Monotherapy: 2 **Minor adverse events: Erythema**	
Abdelghani R, *et al. J Cosmet Dermatol* 2018; **17**:365-72. RCT, outpatient clinic Dermatology and Venerology Dept, university hospital (January 2016-January 2017), Egypt	n=80 adults with localised non-segmental vitiligo 50 F: 30 M Mean age (SD)**:** NB-UVB + CO_2: 36.95 (13.04) years PRP + CO_2: 33.90 (11.89) years	Combination NB-UVB + fractional carbon dioxide (CO_2) laser CO_2 laser, 4 sessions with 2-week interval. One week after each laser session, patients received 2 NB-UVB sessions per week for a	**Disease improvement: Grade 4 (51%-75%) and 5 (76%-100%) repigmentation** NB-UVB + CO_2: 5 + 1 PRP + CO_2: 12 + 8 PRP: 0 + 4 CO_2: 0 + 2	For NB-UVB + CO_2 the best response developed in lesions over the neck followed by lesions over extremities, then truncal lesions and facial lesions. **Minor adverse events: erythema, itching, burning sensation and ecchymosis**

	PRP: 34.90 (15.39) years CO_2: 29.60 (10.80) years Site: Face (21), neck (11), trunk (15), extremities (21), acral lesion (12) Inclusion criteria: Stable lesions; the absence of new lesions or enlargement of the already present lesions for 12 months. Exclusion criteria: History of photosensitive conditions, keloid or hypertrophic scar, and Koebner's phenomenon on laser-treated areas; pregnant and lactating females; history of skin cancer and bleeding tendency; received any topical medications, phototherapy, or laser for vitiligo within 6 months prior to enrolment.	maximum of 2 months. Combination platelet-rich plasma (PRP) injection + fractional CO_2 laser CO_2 laser same regimen. One week after each laser session, patients received intradermal injection PRP injection monotherapy Four sessions of autologous intradermal injection with 3-week interval Fractional CO_2 laser monotherapy Same regimen F/up: 3 months	**Disease-specific patient self-assessment: Patient satisfaction VAS 3 months after final treatment: mean (SD)** NB-UVB + CO_2: 5.65 (3.42) PRP + CO_2: 8.20 (0.62) PRP: 3.85 (3.67) CO_2: 4.5 (2.76)	No side effects were reported except for erythema that occurred after laser and NB-UVB phototherapy. Erythema resolved spontaneously within 24 hours post-treatment
Shafiee A, *et al. Phytother Res* 2018; **32**:1812-7. RCT, IRCT2016061527802N2, two hospital (2016-2017), Iran	n=63 facial vitiligo 35 F: 28 M Mean age (range): 35.8 years (16-61) Exclusion criteria: autoimmune diseases, including alopecia areata, diabetes, Addison's disease, thyroid disorders, and	Combination NB-UVB +piperine (herbal extract derived from black pepper) (35) NB-UVB every other day for 3 months, piperine solution with concentration of 1% was applied to the facial patches	**Disease-specific physician assessment: Doctor's average scores for repigmentation (SD)** NB-UVB +piperine 1 month: 20.3 (7.1) 2 months: 36.9 (11) 3 months: 53.6 (13.4)	**Disease-specific physician assessment: Doctor's average scores for repigmentation (SD) by gender** 1 month: 16.3 (10.3) F: 12.0 (9.2) M 2 months: 29.0 (15.20 F: 21.9 (15.5) M 3 months: 39.6 (21.0) F: 33.7 (22.4) M

	systemic lupus erythematosus; pregnancy, breast feeding; sensitivity to pepper; a history of treatment with NB-UVB or topical medications in the last 2 weeks.	NB-UVB + placebo (28) Same regimen	NB-UVB + placebo 1 month: 7 (6.6) 2 months: 12 (7) 3 months: 16.3 (7.2)	Repigmentation decreased with increasing age but was not significant over the 3-month investigation.
			Disease-specific patient self-assessment: Repigmentation (SD) NB-UVB +piperine 1 month: 20.6 (8.4) 2 months: 37.4 (12.8) 3 months: 51.3 (16.2) NB-UVB + placebo 1 month: 8.0 (7.0) 2 months: 11.8 (9.5) 3 months: 18.4 (9.7)	
			Minor adverse events: burning NB-UVB + piperine: 10 NB-UVB + placebo: 0	

			Minor adverse events: redness NB-UVB + piperine: 6 NB-UVB + placebo: 0	
Li, L. *J Cosmet Laser Ther* 2016; **18**:182-5. RCT, hospital outpatient dermatology department, China	n = 50 with non-segmental and progressive vitiligo lesions Baseline data only given for those that completed the treatment 25 F: 14 M Mean age (range): 35 (18-6053) years Exclusion criteria: Any treatment within 3 months prior to Enrollment; other dermatological or systemic disorders; photodermatosis; psychotic Tendency; drug addiction; pregnancy or breastfeeding	Combination NB-UVB + betamethasone injection + alpha-lipoic acid (ALA) (26) NB-UVB every 2-3 months, ALA 300 mg/ day, betamethasone three times at one-month intervals, for 6 months Combination NB-UVB + betamethasone injection + placebo Same regimen	**Disease improvement: >50% repigmentation** NB-UVB + betamethasone injection + ALA: 3 months: 51%-75% (6) + >75% (5) 6 months: 51%-75% (7) + >75% (11) NB-UVB + betamethasone injection + placebo: 3 months: 51%-75% (4) + .75% (1) 6 months: 51%-75% (9) + .75% (7)	Attrition: 11, NB-UVB + betamethasone injection + ALA (6), NB-UVB + betamethasone injection + placebo (5) **Minor adverse events** Nausea or dizziness after orally taking alpha-lipoic acid (9) The symptoms disappeared by stopping the intake of ALA for several days or changing the time of its intake. Mild erythema, slight oedema, blistering, roughness, mild-to-moderate itching, and burning sensation with NB-UVB. Weight gain after betamethasone

			Disease-specific patient self-assessment: VAS ≥5 NB-UVB + betamethasone injection + ALA: 3 months: 12 6 months: 18 NB-UVB + betamethasone injection + placebo: 3 months: 8 6 months: 15	injection (7), but their weights were reduced to baseline after 1-3 months.
Zhang DM, *et al. Dermatol Surg* 2014; **40**:420-6. RCT (May 2007-September 2011), China	n=473 vitiligo and were going to accept cultured autologous melanocyte transplantation 244 F: 229 M Mean age (range): 22.5 years (5-55) Type: vulgaris (82%), segmental involvement (18%) All had received at least 20 sessions of NB-UVB with poor	Group 1: NB-UVB + cultured autologous melanocyte transplantation + NB-UVB (120) NB-UVB twice a week for 20 sessions before transplantation and two weeks after transplantation for 30 sessions	**Disease improvement: ≥50% repigmentation** Group 1: ≥50%-89% (16) + ≥90% (94) Group 2: ≥50%-89% (26) + ≥90% (74) Group 3: ≥50%-89% (31) +≥90% (70) Group 4: ≥50%-89% (32) +≥90% (48)	Attrition: 26. Group 1 (4), group 2 (9), group 3 (5), group 4 (8) **Minor adverse events** Mild erythema (25), burning or pruritus (28), xerosis (15) Most patients experienced repigmentation after approximately 1 month. Those that received NB-

	results Inclusion criteria: stable vitiligo that had failed to respond to conventional topical and systemic treatments Exclusion criteria: pregnancy, lactation, renal or hepatic disease, neurologic or psychiatric disorder, autoimmune disease, previous or current history of neoplasms, personal history of hypertrophic scarring or keloids, history of photosensitivity or administration of drug known to cause photosensitization	Group 2: NB-UVB + cultured autologous melanocyte transplantation (117) 20 sessions of NB-UVB before transplantation same regimen Group 3: Cultured autologous melanocyte transplantation + NB-UVB (118) 30 session of NB-UVB after transplantation same regimen Group 4: Cultured autologous melanocyte transplantation monotherapy (118) Follow-up: At least 6 months	**Serious adverse events** None	UVB therapy seemed to repigment quicker. No significant difference between Groups 1 & 2 with regard to mean repigmentation

F.1.3 Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments
Lotti T, *et al.* Targeted and combination treatments for vitiligo. Comparative evaluation of different current modalities in 458 subjects. *Dermatol Ther* 2008; **21 Suppl 1**:S20-6. Open study (September 2005-February 2006), Belgium, Czech Republic and Italy	n=470 vitiligo vulgaris with long-term stable or active lesions 261 F: 209 M Age range: 18-72 years 18-30 years: 81 31-40 years: 147 41-50 years: 121 51-60 years: 70 61-70 years: 49 >70 years: 2 Skin type: I 96), II (198), III (242), IV (24) Type: segmental (71), non-segmental (399) Inclusion criteria: Vitiligo vulgaris whose involvement was less than 15% of the total skin surface Exclusion criteria: vitiligo on the hands and/or feet only, the use of systemic corticosteroids or immunosuppressive agents within the last 10 weeks, the use of any local treatments in the immediate 4 weeks before the study began, any known abnormal reactions to UVB irradiation,	Combination NB-UVB plus betamethasone dipropionate (28) NB-UVB (BioSkin®) once every 2 weeks for six consecutive autumn and winter months. All vitiligo patches were irradiated (excluding genital areas and mucous membranes). Intensity of 50 mW/cm^2 was used. Initial dose 20% less than the MED. The dose was increased by 20% in each session until the development of erythema was noted. When erythema developed, the dose of the next session was diminished by 20% only in the erythematous areas. Betamethasone dipropionate 0.05% cream twice daily Combination NB-UVB plus calcipotriol ointment (60) Same regimen. Calcipotriol ointment 50 µg/g twice daily Combination NB-UVB plus L-phenylalanine cream (60) Same regimen. 10% L-phenylalanine cream twice daily	**Disease improvement: ≥50% repigmentation at 6 months** Combination NB-UVB plus betamethasone dipropionate: 27 (>75% 90.2%, 50-75% 6.7%) Combination NB-UVB plus calcipotriol: 54 (>75% 75.6%, 50-75% 14.1%) Combination NB-UVB plus L-phenylalanine: 52 (>75% 74.8%, 50-75% 1.3%) Combination NB-UVB plus pimecrolimus: 61 (>75% 76.1%, 50-75% 20.1%)	Attrition: 12: Combination UVB plus betamethasone dipropionate (2), combination NB-UVB plus tacrolimus (1), betamethasone dipropionate monotherapy (3), tacrolimus monotherapy (3), calcipotriol monotherapy (1), L-phenylalanine monotherapy (1) pimecrolimus monotherapy (1) Patients did not undergo other relevant sun or artificial lamp exposure and/or corticosteroids or other immunosuppressive treatments during the 6-month study.

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	pregnancy, and breast feeding.	Combination NB-UVB plus pimecrolimus (63) Same regimen. Pimecrolimus 1% cream twice daily Combination NB-UVB plus tacrolimus (59) Same regimen. Tacrolimus 0.1% ointment twice daily NB-UVB monotherapy (100) Same regimen Betamethasone dipropionate monotherapy (23) Same regimen Calcipotriol ointment monotherapy (18) Same regimen L-phenylalanine cream monotherapy (18) Same regimen Pimecrolimus monotherapy (19) Same regimen Tacrolimus monotherapy (22) Same regimen	Combination NB-UVB plus tacrolimus: 56 (>75% 76.5%, 50-75% 18.2%) NB-UVB monotherapy: 92 (>75% 72%, 50-75% 19.8%) Betamethasone dipropionate monotherapy: 22 (>75% 71.2%, 50-75% 25%) Calcipotriol ointment monotherapy: 13 (>75% 59.1%, 50-75% 10.6%) L-phenylalanine cream monotherapy: 7 (>75% 29.3%, 50-75% 8.1%) Pimecrolimus monotherapy: 14 (>75% 54.6%, 50-75% 18.4%)	

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			Tacrolimus monotherapy: 17 (>75% 61%, 50-75% 16.1%)	
Gianfaldoni S, *et al.* Micro - focused phototherapy associated to Janus kinase inhibitor: a promising valid therapeutic option for patients with localized vitiligo. *Open Access Maced J Med Sci* 2018; **6**:46-8. Multicentre observational retrospective study, Italy Germany, Croatia, Bulgaria, USA and Australia.	n=67 stable or active forms of localised vitiligo 44 F: 23 M Age range: 25-61 years Rheumatoid arthritis: 9*	Combination NB-UVB and oral Janus kinase inhibitor (9*) UVB micro - phototherapy (BIOSKIN EVOLUTION®), once every three weeks for a total of 12 sessions, with an average dose of 50 mW/cm^2. Initial dose was 20% less than the MED. Oral Janus kinase inhibitor (Tofacitinib citrate) 10 mg/day. NB-UVB monotherapy (58) Same regimen	**Disease improvement: ≥50% repigmentation at end of treatment (33 weeks)** Combination: 9 (>75% 9) NB-UVB: 53 (>75% 42, 50-75% 11) **Treatment tolerability** One patient on the combination arm had a poor response to the treatment **Minor side events** No side effects observed	Information only: As they seem to be reporting mean for one arm and median values for the other: Combination: 9 nearly complete re-pigmentation rate of 92%. NB-UVB: 42 had a median value of 77%.

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Buggiani G, *et al.* Clinical efficacy of a novel topical formulation for vitiligo: compared evaluation of different treatment modalities in 149 patients. *Dermatol Ther* 2012; **25**:472-6. Open, observational study (January 2011-April 2011), Italy	n=149 vitiligo Age range: 18-72 Skin type; II-III Inclusion criteria: Symmetrical vitiligo with long-term, stable or active lesions, involving 10% or less of the skin Exclusion criteria: Vitiligo on the hands and/or feet only (acral vitiligo alone), use of systemic corticosteroids or immunesuppressive agents in the last 10 weeks, use of any local treatments in the last 4 weeks before study initiation, known abnormal reactions to UVB irradiation, pregnancy, and breast-feeding.	Combination NB-UVB and novel topical in a gel formulation containing phenylalanine, cucumis melo extract, and acetyl cysteine (Re-Pigmenta ®) (36) Re-Pigmenta ® twice a day and UVB microphototherapy BioSkin ® once a week for 12 weeks. Initial dose was 20% less than the MED. Dose was increased by 20% in every session until the development of erythema was noted. The dose was then diminished by 20% only in the erythematous areas. NB-UVB monotherapy (43) Same regimen Novel topical gel monotherapy (37) Same regimen Clobetasol propionate (33) Same regimen clobetasol propionate 0.05% ointment, twice a day	**Disease improvement: ≥50% repigmentation after 12 weeks** Combination:32 (89.1%: >75% 73.5%, 50-75% 15.6%) NB-UVB monotherapy:35 (81.4%: >75% 61.1%, 50-75% 20.3%) Novel topical gel monotherapy: 23 (62%: >75% 38.4%, 50-75% 23.6%) Clobetasol propionate: 27 (81.9%: >75% 56.2%, 50-75% 25.7%)	Mild to moderate side effects (teleangiectasias, hypertrichosis, skin atrophy) were observed only in patients treated with clobetasol 0.05% ointment.

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F.2: Narrative findings

F.2.1: Within-patient randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Goldinger SM, *et al.* Combination of 308-nm xenon chloride excimer laser and topical calcipotriol in vitiligo. *J Eur Acad Dermatol Venereol* 2007; **21**:504-8. Randomised, right/left, target lesion, single-blinded trial conducted over a 15-month period, Switzerland	n=10 vitiligo 4 F: 5 M Mean age (range): 40 years (24-60)	Combination NB-UVB plus topical calcipotriol 308-nm xenon chloride excimer three times a week for 8 weeks. Initial dose of UV light was 100 mJ/cm^2 and this dose was increased by 50 mJ/cm^2 each session unless erythema persisted for more than 48 hours. Calcipotriol ointment was applied to lesions on one side of the body twice a day (morning and evening). NB-UVB Same regimen	**Serious adverse events** None	Attrition: 1 (withdrew after 5 treatments for reasons unrelated to the study) Baseline characteristics only given for those that completed the treatment. Complete repigmentation did not occur in any of the patients. Mean repigmentation rate was 22.4% (1– 37%). No difference between the two sides in time to onset of repigmentation was noted. Lesions on both body sides were significantly smaller after therapy, mean lesion surface area was reduced: Combination: from 112 to 88 cm^2 NB-UVB: from 141 to 110 cm^2 No new lesions occurred during the treatment period. Patients with skin type III–IV had better and faster repigmentation than those with skin type II and the initial

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				repigmentation occurred earlier on both sides.
Anbar TS, *et al.* The effect of latanoprost on vitiligo: a preliminary comparative study. *Int J Dermatol* 2015; **54**:587-93. Randomised-intraindividual study with pair-lesions, observer blinded, Egypt F/up: 6 months	n=22 vitiligo with lesions stable for the last 3 months involving <5% BSA Mean age (range): 15.5 years (6-55) Skin type: III (3), IV (17), V (2) Exclusion criteria: segmental vitiligo, patients who received any local or systemic treatment for vitiligo for at least three months before the study, photosensitive patients, those with light aggravated dermatoses, and pregnant or lactating females, patients with asthma or hypertension (due to the known contraindication of LT)	Group 2 (7) NB-UVB Twice a week on non-successive days, initial dose 0.21 J/cm^2, increased by 20% every session until MED was reached. Latanoprost (LT) A prostaglandin F 2alpha (PGF2a) analogue twice daily. Group 3 (8) Combination NB-UVB plus LT Same regimen. On days of radiation, the topical application was applied following NB-UVB exposure. NB-UVB Same regimen	**Disease improvement: >50% repigmentation at end of treatment (3 months)** Group 2 NB-UVB: 2 (>75% 1, 50-75% 1) LT: 3 (>75% 3) No significant difference Group 3 Combination NB-UVB plus LT: 5 (>75% 4, 50-75% 1) NB-UVB: 1 (50-75% 1) $p < 0.05$	Group 1 (7) Placebo vs Latanoprost (LT) outside scope Attrition: 2 (lost to follow-up) Plus the 8 patients who showed poor or no repigmentation refused to wait for another 6 months without treatment so were shifted to other forms of therapy 12 who achieved >50% repigmentation were followed-up: **Sustained clearance: 6 months** 9 patients
Namazi MR, Shotorbani AK. Evaluation of the Efficacy of Topical Ethyl Vanillate in Enhancing the Effect of Narrow Band Ultraviolet B	n=30 generalized stable vitiligo 23 F: 7 M Age range: 22-60 years	Combination NB-UVB + ethyl vanillate cream Ethyl vanillate cream 20% applied to assigned lesion twice a day for 3 months,	**Disease-specific physician assessment: difference in mean (SD) pigmentation (3 months)**	

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against Vitiligo: A Double Blind Randomized, Placebo-Controlled Clinical Trial. *Iran J Med Sci* 2015; **40**:478-84. Double-blind left/right placebo controlled clinical trial, out-patient clinic, Iran	Inclusion criteria: generalized (more than 20% of body surface area), and inactive disease (no progression, nor development of new lesions within the last 3 months) Exclusion criteria: < 6 years, pregnant women, history of cutaneous malignancy, immunosuppression, photosensitive disorders, taking or applying any medications for vitiligo within the last 3 months.	while receiving NB-UVB 2-3 times a week NB-UVB + placebo cream Same regimen to opposite side assigned lesion	NB-UVB + Ethyl vanillate cream: 6.66 (11.09) NB-UVB + placebo cream: 2.50 (6.91) *p*=0.005	
Vachiramon V, Chaiyabutr C, Rattanaumpawan P *et al.* Effects of a preceding fractional carbon dioxide laser on the outcome of combined local narrowband ultraviolet B and topical steroids in patients with vitiligo in difficult-to-treat areas. *Lasers Surg Med* 2016; 48:197-202. Randomised-intraindividual study with pair-lesions on both hands, out-patient department, Thailand	n=27 stable non-segmental vitiligo on both hands or fingers 15 F: 11 M* Mean age (SD): 51.2 (8.5) years Skin type: III (2), IV (18), V (6)	Combination, NB-UVB plus fractional CO_2 laser, and topical clobetasol propionate (group A) Fractional CO_2 laser was performed at 1-week interval for 10 sessions. NB-UVB was administered twice weekly for 20 sessions on non-consecutive days. Topical 0.05% clobetasol propionayte cream was applied on all lesions on the same day as the procedure and continued twice daily throughout the study period	**Disease improvement: >50% repigmentation (12 weeks after last treatment)** Group A: 6 lesions Group B: 1 lesion *p*=0.065 **Overall mean improvement (SD)** Group A: 1.35 (1.38) Group B: 0.50 (0.95)	Attrition: 1 (during f/up period) *Data only given for those that completed 12-week f/up None of the lesions achieved 100% repigmentation No response Group A: 11 lesions Group b: 18 lesions Mean (SD) patient satisfaction score: Group A: 5.71 (2.86) Group B: 3.48 (2.61)

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F/up: 12 weeks		Combination, NB-UVB phototherapy plus clobetasol propionate cream (group B) Same regimen.	**Minor adverse events: pain** Group A: 25 lesions Group B: 12 lesions Mean (SD) pain score: Group A: 4.49 (2.42) Group B: 1.12 (2.09)	*p*=0.0004 Other adverse events: Transient edema in group A. Temporary tiny brown spots on nail plates which remained for a few days
Li L, *et al.* Triple combination treatment with fractional CO2 laser plus topical betamethasone solution and narrowband ultraviolet B for refractory vitiligo: a prospective, randomized half-body, comparative study. *Dermatol Ther* 2015; 28:131-4. Right/left	n=25 stable vitiligo on extremities and/or bony prominences 13 F: 12 M Age range; 21-63 years Site: hands (21), feet (20, bony prominences (2)	Triple combination, fractional carbon dioxide laser followed by topical compound betamethasone solution and NB-UVB Combination fractional carbon dioxide laser followed by NB-UVB	**Disease improvement: >50% re-pigmentation 3 months post-treatment** Triple combination: 10 (40%) Combination: 2 (8%) **Disease improvement: >50% re-pigmentation 6 months post-treatment** Triple combination: 11 (44%) Combination: 2 (8%) **Disease-specific patient self-assessment: patient satisfaction score 3 months post- treatment** Triple combination: 4.08 (2.89) Combination: 1.52 (1.29) *p* <0.05	No patients developed noticeable adverse events, such as local infection, scarring, Koebner phenomenon, and aggravation of vitiligo. All patients experienced moderate pain during the laser treatment, as well as slight burning sensation, and erythema, edema after laser treatment. The symptoms were tolerable and relieved within a day, and post-treatment crusting disappeared within a week.

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			Disease-specific patient self-assessment: patient satisfaction score 6 months post- treatment Triple combination: 5.12 (3.23) Combination: 2.04 (1.51) *p* <0.05	

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F.2.2: Within-patient comparative studies

Study/ design	Population	Intervention	Outcomes	Comments
Dayal S,*et al*. Treatment of childhood vitiligo using tacrolimus ointment with narrowband ultraviolet B phototherapy. *Pediatr Dermatol* 2016; **33**:646-51. Open label, prospective, right/left, intraindividual clinical trial, Department of Dermatology, India **STRATA**	n=20 children with stable vitiligo involving 5%-50% BSA 11 F: 9 M Mean age (range): 11.1 years (4-14) Mean %BSA (SD): 12.3 (5.2) Site: head and neck (5), trunk (3), upper limb (2), lower limb (10) Exclusion criteria: history of impaired renal or hepatic function, vitiligo on the hands and feet only, claustrophobia, intolerance to or previous failure of phototherapy, photosensitivity, and photomediated disorders, patients who had received other forms of treatment for vitiligo within 3 months or a history of taking photosensitizing drugs or concomitant radiotherapy,	Combination NB-UVB plus topical tacrolimus NB-UVB 3 times a week on non-consecutive days for 24 weeks. Initial dose 280 mJ/cm^2, increased by 20% each subsequent visit until minimal erythema occurred in the lesions. In the case of symptomatic erythema, further treatment was withheld until symptoms subsided. After the resolution of symptoms, dose administration was reduced to 50% of the previous dose and subsequent doses were increased by 10%. Topical tacrolimus ointment 0.03% twice daily on target patch NB-UVB Same regimen	**Disease improvement: ≥50% repigmentation (end of study)** Combination: 12 (>75% 8, 50-75% 4) NB-UVB: 4 (>75% 2, 50-75% 2) **Disease-specific physician assessment: mean percentage of repigmentation (2 months)** Combination: 26% NB-UVB: 7% Not significant **Disease-specific physician assessment: mean percentage of repigmentation (4 months)** Combination: 42.2% NB-UVB: 23% **(**$p < 0.05$)	**Mean percentage repigmentation by site (SD) (end of study)** Combination: Face: 100% Trunk: 59.6% (21%) Proximal limbs: 75% (15%) NB-UVB: Face: 65% (30.4%) Trunk:19.6% (19.1%) Proximal limbs:23.3% (14.4%) The number of NB-UVB exposures and mean cumulative dose for the first clinically visible response for combination therapy was statistically lower than for NB-UVB monotherapy. **Minor adverse events** Marked erythema (2), blister on both sides (1) both of which lead to a temporary interruption of therapy, pruritus (1)

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	chemotherapy, or immunosuppressive therapy, history of known hypersensitivity to macrolides and patients with lesions showing changes of skin atrophy.		**Disease-specific physician assessment: mean percentage of repigmentation (6 months)** Combination: 72% NB-UVB: 31.5% ($p < 0.001$)	
Salah Eldin MM, *et al.* Comparison Between (311-312 nm) Narrow Band Ultraviolet-B Phototherapy and (308 nm) Monochromatic Excimer Light Phototherapy in Treatment of Vitiligo: A Histopathological Study. *J Lasers Med Sci* 2017; **8**:123-7. Comparative two lesions, PACTR201705002279419, dermatology out-patient clinic, Egypt	n=30 with non-segmental vitiligo lesions Mean age (range): 32.5 years (18-60) Skin type: II (3), III (10), IV (12), V (5) Exclusion criteria: Patients with lesions located on sun exposed areas (for possible re-pigmentation), past history of dermatological cancer, photosensitivity disorders, immunosuppressive treatment, pregnancy and breastfeeding, phototherapy or topical treatment for the last 6 months prior to the study.	Monochromatic excimer light (MEL) 308-nm MEL twice a week on non-successive days for 6 weeks. Initial dose was almost 70% MED. Dose increases were 40% for treatment sessions1 to 4, 30% for 4 to 8, and 20% continuously from treatment 8 forwards, until slight erythema was attained. NB-UVB Same regimen	**Disease-specific physician assessment: immunohistochemistry labelling index (LI)** MEL: 4.2 (2.6) NB-UVB: 0.3 (0.7) $p<0.001$	There was no superior significance to any treatment modality in regards to side effects

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<table>
<tr>
<td>Zhang M, et al. A comparative study for the short-term effects of targeted high-intensity UVB and narrow-band UVB in the treatment of vitiligo. Exp Ther Med 2017; 13:3383-7.

Left/right comparative study (symmetrically-distributed pairs of vitiligo patches), China</td>
<td>n=33 stable vitiligo with <10% skin involvement

19 F: 14 M
Mean age (SD): 34.3 (8.9) years
Skin type: III (2), IV (31)
Site: Face/neck (5), trunk (14), leg/arm (8), hand/foot (3)

Exclusion criteria: History of skin cancer, psychological disorders, photosensitive conditions (such as solar urticaria, xeroderma pigmentosum, or chronic actinic dermatitis) or lupus erythematosus, those who were lactating or pregnant.</td>
<td>NB-UVB
Twice a week for 12 weeks.
Initial dose 70% MED.
Subsequent dose was increased by 10% if no erythema occurred or erythema lasted for <24 hours, or kept the same if erythema lasted for 24-72 hours. If pain or blistering developed or erythema lasted >72 hours, treatment was suspended until these symptoms resolved, and the dose was reduced by 10%.

Targeted high-intensity UVB (TH-UVB)
Same regimen: initial dose 2MED. TV-UVB treatment: light source is able to output UVB spectral peaks at 302 and 312 nm wavelengths, and the mean weighted erythemal wavelength was 304 nm and is able to administer a high output of UVB irradiation of 100 mJ/cm^2 in ~0.7 sec.</td>
<td>Disease improvement: ≥50% repigmentation, after 16 treatments

NB-UVB: 0
TH-UVB: 2

All 50-75%

Disease improvement: ≥50% repigmentation, after 24 treatments

NB-UVB: 1
TH-UVB: 5

All 50-75%, total repigmentation was not observed

Disease-specific physician assessment: mean repigmentation

NB-UVB: 20.0%
TH-UVB: 56.7%

p<0.05</td>
<td>Attrition: 3 (dropped out)

Effective rates of repigmentation by site

<table>
<tr><th>Site</th><th>NB-UVB</th><th>TH-UVB</th></tr>
<tr><td>Face/neck</td><td>40.0%</td><td>0.0%</td></tr>
<tr><td>Trunk</td><td>85.7%</td><td>42.9%</td></tr>
<tr><td>Leg/arm</td><td>0.0%</td><td>0.0%</td></tr>
<tr><td>Hand/foot</td><td>0.0%</td><td>0.0%</td></tr>
</table>

Only mild adverse events, such as scaling and itching, were observed, and these symptoms were relieved by the application of moisturizer.

Mean number of radiations necessary for initial repigmentation:
NB-UVB: 15.36 (3.43)
TH-UVB: 7.95 (3.43)

p<0.05</td>
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<tr>
<td>Yuan J, et al. Fractional CO2 lasers contribute to the treatment of stable non-segmental vitiligo. Eur J Dermatol 2016; 26:592-8.

Pilot within patient, single-blinded (lesions) trial, Dermatology Department, China

F/up; 6 months</td>
<td>n=24 non-segmental stable vitiligo (located on the abdomen, back, huckle, and lumbosacral portion)

13 F: 7 M
Paired sites: 28
Age range 21-61 years</td>
<td>NB-UVB, plus ablative CO_2 plus betamethasone solution (Option 1)
Six laser sessions, one month apart with 1-stack static mode in each session. 10,600-nm CO_2 fractional laser followed by topical betamethasone solution, in combination with NB-UVB. The parameter was set at a fluence of 80 mJ as the energy and a coverage of 12.6% (361 MTZs) as the density.

NB-UVB, plus ablative CO_2 plus betamethasone solution (Option 2)
Same regimen, with parameter set at 10 mJ and a coverage of 10%.

NB-UVB, plus non-ablative CO_2 plus betamethasone solution (Option 3)
Same regimen, 1,565-nm fractional laser. Parameter was set at a fluence of 40 mJ and a coverage of 350 MTZs.(option 3)

NB-UVB (Option 4)
Same regimen.</td>
<td>Disease improvement: ≥50 repigmentation: 3 months f/up

Option 1: 50% (≥75% 10%; 50-75% 40%)
Option 2: 45% (≥75% 10%; 50-75% 35%)
Option 3: 25% (≥75% 5%; 50-75% 20%)
Option 4: 10% (50-75% 10%)

Disease improvement: ≥50 repigmentation: 6 months f/up

Option 1: 70% (≥75% 55%; 50-75% 15%)
Option 2: 65% (≥75% 45%; 50-75% 20%)
Option 3: 45% (≥75% 20%; 50-75% 25%)
Option 4: 25% (≥75% 10%; 50-75% 15%)

Disease-specific patient self-assessment: >5 (6-10) at 3 months f/up

<table>
<tr><td rowspan="2">Score</td><td colspan="4">Option</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td></tr>
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<td>Attrition: 4

Baseline characteristics only given for those that completed the treatment

All patients reported slight to moderate pain during the fractional laser treatments, as well as a slight burning sensation after the treatment. The side effects were tolerable and did not affect the course of treatment</td>
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<table>
<tr><td>6</td><td>3</td><td>4</td><td>2</td><td>3</td></tr>
<tr><td>7</td><td>4</td><td>4</td><td>3</td><td>1</td></tr>
<tr><td>8</td><td>6</td><td>2</td><td>3</td><td>1</td></tr>
<tr><td>9</td><td>1</td><td>0</td><td>1</td><td>0</td></tr>
<tr><td>10</td><td>2</td><td>1</td><td>0</td><td>0</td></tr>
<tr><td>>5</td><td>16</td><td>11</td><td>9</td><td>5</td></tr>
</table>
Disease-specific patient self-assessment: ≥5 at 6 months f/up
<table>
<tr><td rowspan="2">Score</td><td colspan="4">Option</td></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>6</td><td>2</td><td>2</td><td>1</td><td>5</td></tr>
<tr><td>7</td><td>3</td><td>3</td><td>2</td><td>2</td></tr>
<tr><td>8</td><td>2</td><td>6</td><td>4</td><td>3</td></tr>
<tr><td>9</td><td>3</td><td>3</td><td>1</td><td>1</td></tr>
<tr><td>10</td><td>9</td><td>4</td><td>4</td><td>1</td></tr>
<tr><td>>5</td><td>19</td><td>18</td><td>12</td><td>12</td></tr>
</table>
</td>
<td></td>
</tr>
<tr>
<td>Gamil H, et al. Narrowband ultraviolet B as monotherapy and in combination with topical calcipotriol in the treatment of generalized vitiligo. Clin Exp Dermatol 2010; 35:919-21.

Open, right/left comparative study,</td>
<td>n=20 generalised vitiligo

14 F: 6 M
Mean age (range): 25. 3 years (12-53)
Mean %BSA (range): 26.5 (10-45)
Skin type: III (5), IV (7), V (8)</td>
<td>Combination NB-UVB plus topical calcipotriol
NB-UVB three times a week on non-consecutive days (60 sessions) to the right side of the body. Initial dose and increments were chosen according to skin phototype using the calibrated tables supplied by the</td>
<td>Disease-specific physician assessment: VIDA score 0, -1 (6 months f/up)

Combination: 4
NB-UVB: 5

Not significant</td>
<td>Fewer sessions with a lower initial cumulative dose was required for the initial response on the right side compared with the left side, the difference was not significant (p > 0.05).

Best results were found for facial lesions, with the trunk and proximal limbs having good to moderate</td>
</tr>
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Egypt F/up; 6 months		manufacturer. Topical calcipotriol 0.05 mg⁄g cream twice daily. NB-UVB Same regimen	**Change in quality of life: DLQI (6 months f/up)** 'Patients had a highly significant decrease in DLQI after the end of treatment on both sides (*p*< 0.001), indicating that vitiligo has a negative psychosocial effect on patients' quality of life.'	repigmentation, but the hands and feet were resistant.
Hartmann A, *et al.* Narrow-band UVB311 nm vs. broad-band UVB therapy in combination with topical calcipotriol vs. placebo in vitiligo. *Int J Dermatol* 2005; **44**:736-42. Prospective right/left comparative study, November 2000-April 2001, Germany	n=10 with vitiliginous lesions >10%BSA, vitiligo vulgaris (6), acrofacial vitiligo (2), localised vitiligo (1)* 3 F: 9 M Mean age (range): 41.2 years (35-51) Type: progressive (7), stable (2) Exclusion criteria: Patients with spontaneous	Combination NB-UVB plus topical calcipotriol Upper right side of the body was treated twice weekly with UVB for 12 months and calcipotriol applied NB-UVB plus placebo Same regimen upper left side of the body	**Disease improvement: ≥50 repigmentation** No difference between the two arms 4 (>75% 2, 50-75% 2) **Disease-specific physician assessment: VIDA score 0, -1 (12 months)** 8, no difference between the two arms	Attrition: 1 dropped out due to noncompliance *Baseline characteristics only given for those that completed the treatment The lower part of the body was initially treated with BB-UVB plus topical calcipotriol and BB-UVB. After 6 months of treatment with no repigmentation, the lower part was then treated with NB-UVB. Adverse effects were minimal.

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	repigmentation, who had received topical or systemic treatment during the last 6 months, those with concomitant diseases or other autoimmune diseases.		**Change in quality of life: mean improvement in DLQI (12 months)** 28%	Vitiligo lesions on the arms, back, cheeks, buttocks, and thighs responded favourably to therapy, whereas lesions on the dorsum of the hands and feet, elbows and knees, and neck showed little to no repigmentation.
Kullavanijaya P, *et al.* Topical calcipotriene and narrowband ultraviolet B in the treatment of vitiligo. *Photodermatol Photoimmunol Photomed* 2004; **20**:248-51. Open, left/right comparison study (August 2001-October 2002), USA	n=20 vitiligo 6 F: 11 M Mean age (range): 44.6 years (17-68) Race: Caucasian (9), African Americans (8) Mean %BSA (range): 14.4$ (<1-50%)	Combination NB-UVB plus topical calcipotriol All patients except one were exposed to NB-UVB three times a week, starting with 280 mJ/cm^2; the exception was one patient who used home NB-UVB unit three times per week. Treatment dose was increased by 10–15% per treatment. Topical calcipotriene ointment 0.005% was applied to all lesions on the left side of the body twice a day. NB-UVB Same regimen.	**Disease improvement: significant (66%-100%)** 8 Better response on combination side: **3** Equal response on both side: 5 **Minor adverse events** No adverse effects were detected	Attrition: 3 protocol violation Base characteristics only given for those that completed the study Lesions on the trunk responded the best while lesions on hand and extremities responded the least. **Treatment tolerability** All patients tolerated the combination treatment well.

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Korobko IV, *et al.* A pilot comparative study of topical latanoprost and tacrolimus in combination with narrow-band ultraviolet B phototherapy and microneedling for the treatment of nonsegmental vitiligo. *Dermatol Ther* 2016; **29**:437-41. Pilot left-right comparative study, Russia	n=25 vitiligo vulgaris 21 F: 3 M Mean age (range): 40.3 years (24-66) Inclusion criteria: aged 18–65 with vitiligo vulgaris stable for at least 3 months and with symmetrically located lesions not exceeding15 cm^2 in area Exclusion criteria: pregnant or breast-feeding, diagnosed with acute or chronic diseases (anemia, kidney or liver diseases, diabetes, cardio-vascular or nervous system pathologies, oncological diseases), taking statins, antihypertensive drugs, corticosteroids, antibiotics (minocycline), acetylsalicylic acid, and so forth, or those who received treatment for vitiligo within last 3 months	Combination NB-UVB plus 0.005% topical latanoprost solution To facilitate drug delivery through stratum corneum, initial applications of topical agents were performed immediately after skin microneedling once a week for 4 weeks. Three NB-UVB sessions on alternate days starting the following day. Initial dose 0.1 J/cm^2 for skin phototype I and II, and 0.2 J/cm^2 for skin phototype III. Dose increment was 0.1 J/cm^2 (if previous scheduled session has been occasionally omitted, UV dose was not increased). Then for 2 months NB-UVB every other day with application of topical on the day between sessions. Combination NB-UVB plus 0.1% tacrolimus ointment (control) Same regimen	**Disease improvement: ≥50 repigmentation (4 weeks)** Combination: 8 Control: 3 All 50-75% **Disease improvement: ≥50 repigmentation (3 months)** Combination: 10 (≥75% 7, 50-75% 3) Control: 8 (≥75% 1, 50-75% 7) *p*=0.0459 **Minor adverse events** None reported	Attrition: 3, 1 dropped out after first visit, 2 dropped out after 4 weeks Baseline characteristics not given for patient that dropped out after first visit. Patients received at average 36 sessions, with maximal single dose from 1.3 to 3.7 J/cm^2 (2.45 J/cm^2 at average) and cumulative dose from 46.8 to 133.2 J/cm^2 (88.2 J/cm^2 at average).

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<table>
<tr>
<td>Sahu P, et al. Tacalcitol: a useful adjunct to narrow-band ultraviolet-B phototherapy in vitiligo. Photodermatol Photoimmunol Photomed 2016; 32:262-8.

Open label right/left comparative study, Department of Dermatology (April 2013-December 2015), India

F/up: 6 months</td>
<td>n=30 with vitiliginous lesions

19 F: 11 M
Mean age (range): 31.63 years (20-57)
Mean BSA% (SD): 29.4 (7.0)

Inclusion criteria: ≥18 years, with symmetrical vitiligo lesions involving >15% and not exceeding 50% of BSA

Exclusion criteria: pregnant or lactating women, patients with impaired renal or hepatic function, intolerance or previous failure to phototherapy, photosensitivity or photoaggravated dermatosis, malignant skin tumours such as melanoma, dysplastic nevi or actinic keratosis, and any evidence of spontaneous repigmentation during the preceding one year, previous treatment with phototherapy, history of taking photosensitizing drugs or concomitant</td>
<td>Combination NB-UVB plus topical tacrolimus
NB-UVB three times a week for 24 weeks. Initial dose 250 mJ/cm^2, increased by 20% of the previous dose on each subsequent visit till persistent asymptomatic erythema was achieved. Tacalcitol ointment on right side of body once a day (after NB-UVB on treatment days).

NB-UVB
Same regimen</td>
<td>Disease improvement (≥50% repigmentation)

Combination: 83.33% (>75% 53.33%; 50-75% 30%)
NB-UVB: 43.33% (50-75% 43.33%)

Serious adverse events

None

Disease-specific physician assessment: mean% repigmentation

8 weeks
Combination: 16.47%
NB-UVB: 9.67%

16 weeks
Combination:42.10%
NB-UVB: 26.43%

24 weeks
Combination: 68.04%
NB-UVB: 48.50%</td>
<td>The mean cumulative dose (SD) for initial repigmentation in the patches treated with combination 1.74 (0.804) J/cm^2 was significantly lower than for the NBUVB 2.91 (1.71) J/cm^2 (p-value < 0.001) hence time for first response was shorter.

Quantitative response according to site of lesion
<table>
<tr><td></td><td>Mean% (SD)</td></tr>
<tr><td>Head & neck</td><td></td></tr>
<tr><td>Combination</td><td>70.00 (18.028)</td></tr>
<tr><td>NB-UVB</td><td>34.0 (12.166)</td></tr>
<tr><td>Trunk</td><td></td></tr>
<tr><td>Combination</td><td>81.67 (14.434)</td></tr>
<tr><td>NB-UVB</td><td>70.00 (8.660)</td></tr>
<tr><td>Proximal limbs</td><td></td></tr>
<tr><td>Combination</td><td>66.44 (19.064)</td></tr>
<tr><td>NB-UVB</td><td>46.00 (20.816)</td></tr>
<tr><td>Hand & feet</td><td></td></tr>
<tr><td>Combination</td><td>65 (21.909)</td></tr>
<tr><td>NB-UVB</td><td>52.5 (22.967)</td></tr>
</table>
Sustained clearance (≥6 months)

12 (8 relapsed, 10 unknown –</td>
</tr>
</table>

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	immunosuppressive therapy within 3 months prior to the study, history of hypercalcaemia, hypersensitivity to tacalcitol or who had any systemic disease (thyroid or parathyroid diseases).			lost to f/up)
Majid I. Does topical tacrolimus ointment enhance the efficacy of narrowband ultraviolet B therapy in vitiligo? A left-right comparison study. *Photodermatol Photoimmunol Photomed* 2010; **26**:230-4. Prospective single-blind left-right comparative study, single centre (January 2008-January 2009), India	n=80 generalised vitiligo 41 F: 33 M Mean age (range): 22.73 years (12-42) Inclusion criteria: ≥12 years, vitiligo involving at least 10% BSA, presence of bilaterally symmetrical lesions on face, trunk or limbs. Exclusion criteria: Spontaneously repigmenting vitiligo, history of any hypersensitivity to tacrolimus and any known contraindication to phototherapy.	Combination NB-UVB plus topical tacrolimus (117 lesions) NB-UVB 3 times a week on non-consecutive days. Initial dose 200 mJ/cm^2, dose increased by 20% on each visit until MED was achieved. Topical tacrolimus 0.1% ointment applied twice a day on selected symmetrically distributed lesions on the left side of the body. NB-UVB (117 lesions) Same regimen Total duration of the study period was 12 months or until complete repigmentation of study lesion if earlier.	**Disease improvement: ≥50 repigmentation (lesions)** Combination: 99 (100% 24, 90% 20, 75% 43, 50% 12) NB-UVB: 97 (100% 10, 90% 8, 75% 35, 50% 44) **Disease-specific physician assessment: Mean repigmentation of lesions VASI score:** Combination: 71% NB-UVB: 60.5% **Minor adverse events** One patient developed generalised urticaria on exposure to NB-UVB. Treatment stopped, put on oral H_1 blockers, but	Attrition: 6 Baseline characteristics only given for those that completed the treatment Lesions on hands and feet were, however, excluded from the comparison analysis Truncal lesions responded equally well as the lesions on upper or lower limbs. Patients with early disease were observed to respond better than those with a long-standing vitiligo. These patients usually belonged to the younger age group (<20 years) so younger patients responding better to the treatment regimen than the older age groups. **Mean time to onset of repigmentation (range)**

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			relapsed when NB-UVB was restarted	Combination: 19 days (14-25) NB-UVB: 26 days (18-30)
Abd El-Samad Z,*et al*. Treatment of localized non-segmental vitiligo with intradermal 5-flurouracil injection combined with narrow-band ultraviolet B: a preliminary study. *J Dermatolog Treat* 2012; **23**:443-8. Right/left, out-patient clinic, Egypt	n=60 vitiligo affecting <30% BSA 34 F: 26 M Mean age (range): 28 years (18-35) Skin type: III (18), IV (42) Exclusion criteria: <18 years, pregnant or lactating females, patients known to have a good or rapid response to conventional modalities.	Combination NB-UVB plus intradermal injection of 5-flurouracil (5-FU) NB-UVB twice a week for a maximum of 4 months or when complete repigmentation was achieved. Initial dose was 0.2 J/cm^2 and increased by 20% every session until minimal erythema was achieved. intradermal injection of 5-FU (50 mg/ml), 0.01-0.02 ml per injection with 1 cm apart in skin of vitiligo, every 2 weeks for 4 months. NB-UVB Same regimen	**Disease improvement: ≥50% repigmentation** Combination NB-UVB and 5-FU: 45 (>75% 29, 50-75% 16) NB-UVB: 6 (>75% 4, 50-75% 2)	**Disease improvement: ≥75% repigmentation by site** Combination NB-UVB and 5-FU: extremities (20), trunk (14), facial (6), acral (0) NB-UVB: extremities (0), trunk (2), facial (0), acral (0) Minor adverse events only reported for the combination side with regard to 5-FU: blister formation after 1st or 2nd injection (8), small ulcer and crust formation (3), hyperpigmentation (15) One pain stopped treatment because of pain
Ibrahim ZA, *et al.* The effect of platelet-rich plasma on the outcome of short-term narrowband–ultraviolet B phototherapy in the treatment of vitiligo: a pilot study. *J Cosmet Dermatol* 2016; **15**:108-16. Prospective right/left comparative	n=60 localised stable non-segmental vitiligo 34 F: 26 M Mean age (range): 28 years (18-35) Skin type: III (18), IV (42) Location: face (21), Acral parts (12), trunk (15),	Combination NB-UVB plus Platelet-rich plasma (PRP) NB-UVB twice a week for a maximum of 4 months. Initial dose was 0.33 J/cm^2, and this was increased by 20% every session till the MED was achieved. PRP injection intradermally in the lesion, 0.1 cc	**Disease improvement: ≥50 repigmentation (4 months)** Combination: 45 (>75% 33, 50-75% 12) NB-UVB: 0 $p < 0.001$	Quantitative response for different body sites Mean (SD) **Face** Combination 75.71 (26.68) NB-UVB 11.0 (8.11) **Acral** Combination 16.75 (10.76) NB-UVB 4.24 (1.36) **Trunk**

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pilot study, outpatient clinic (March 2014-March 2015), Egypt F/up: 3 months	extremities (12) Exclusion criteria: Patients known to have a good or rapid response to conventional modalities, pregnant or lactating females and young patients <18 years.	per point with a space of 2 cm between different points of injections, every 2 weeks for 4 months NB-UVB Same regimen	**Minor adverse events** Combination: pain during injection (30) ecchymosis (9)	Combination 71.8 (18.72) NB-UVB 15.0 (13.09) **Extremities** Combination 78.5 (17.95) NB-UVB 13.25 (9.86) After 3 months of follow-up, the combination side continued improving and no relapses was reported while in the NB-UVB side, depigmentation restarted again in 50% of the patients.
Majid I. Topical placental extract: does it increase the efficacy of narrowband UVB therapy in vitiligo? *Indian J Dermatol Venereol Leprol* 2010; **76**:254-8. Prospective right/left comparative study, single centre (May 2007-May 2008), India	n=90 vitiligo 58 F: 32 M Mean age (range): 23.63 years (13-36) Inclusion criteria: Presence of bilaterally symmetrical vitiligo lesions on the upper or lower limbs, face or trunk, progressive or stable disease, at least 10% BSA Exclusion criteria: <12 years, spontaneously repigmenting vitiligo and any known contraindication to phototherapy	Combination NB-UVB plus topical placental extract (109 lesions) NB-UVB three times a week on non-consecutive days. Initial dose 200 mJ/cm^2 , increased by 20% every session till the MED was achieved. Topical placental extract (placentrex) lotion on their vitiligo lesions on the right side of the body. NB-UVB (109 lesions) Same regimen Total duration of the study period was 12 months or until complete repigmentation of study lesion if earlier.	**Disease improvement: ≥50 repigmentation (lesions)** Combination: 82 (100% 21, 90% 18, 75% 23, 50% 20) NB-UVB: 82 (100% 15, 90% 16, 75% 31, 50% 20) **Disease-specific physician assessment: mean repigmentation VASI score:** Combination: 63% (VASI score 3.69) NB-UVB: 62% (VASI score 3.60)	Attrition: 12 (domestic or personal reasons) Lesions on hands and feet were, however, excluded from the comparison analysis Adverse effects to the treatment regimen were minor and insignificant. The time and thus the NB-UVB dose needed for the onset of repigmentation was the same for lesions on the two sides of the body.

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Appendix G: Skin diseases: Eczema/atopic dermatitis

G.1: Summary of included studies

G.1.1 Systematic reviews

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Nankervis, H. *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070	Yes	Yes	Yes (the end of 2000-31 August 2013) MEDLINE, EMBASE, Cochrane Central Register of Controlled Trials, Cochrane Skin Group Specialised Register, LILACS, AMED and CINAHL	Yes	Yes	RCTs
Comments: Update of the National Institute for Health Research (NIHR) Health Technology Assessment (HTA) systematic review of treatments for atopic eczema, published in 2000. Aim to inform health-care professionals, commissioners and patients about key treatment developments and research gaps. This review included 287 new trials covering 92 different treatments including topical, systemic, non-pharmacological, behavioural, complementary and alternative treatments. As with the earlier review, which included 254 eczema treatment trials, trial reporting was generally poor (randomisation method: 2% high, 36% low and 62% unclear risk of bias; allocation concealment: 3% high, 15% low and 82% unclear risk of bias; blinding of the intervention: 15% high, 28% low, 57% unclear risk of bias). Only 22 (8%) trials were considered to be at low risk of bias for all three quality criteria. **Summary:** There were six trials of phototherapy treatment reported up to 2000 comparing different UVA or UVB treatments and regimens. The trials were small and poorly reported but did provide some evidence of a large treatment benefit. Twelve trials were published after 2000; all were small but they showed some weak evidence of a large and rapid treatment benefit of phototherapy. Five of these involved NB-UVB, 3 compared NB-UVB with UVA and 2 compared NB-UVB with or in combination with other active treatments						

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One RCT of adults with eczema (that was not considered to be mild) (n=73) compared NB-UVB, with BB-UVA or visible light phototherapy.[363] All three groups started with a similar mean baseline severity score. Nineteen out of 21 participants in the UVB group had a reduction in itch over the treatment period compared with 12 out of 19 in the UVA group, results for the third arm were not reported. The total disease activity score improved in the the UVB group by a mean of 9.4 points (95% CI 3.6 to 15.2) more than the visible light group while the UVA group improved by a mean of 4.4 points (95% CI –1.0 to 9.8) more than the visible light group.

A left/right within-person RCT compared NB-UVB against medium-dose UVA1 (350–400 nm) given three times per week for 8 weeks.[364] Thirteen adults with a symmetrical eczema distribution were included, the face was excluded from the analysis. No other topical treatments except for emollients were allowed during the trial. The participant-assessed reduction in itch over 12 weeks was similar for the two treatments. The medium-dose NB-UVB group fell from 5.9 to 2.3 and the UVA1 group from 5.8 to 2.7. As was the eczema severity (recorded using the Leicester Sign Score). The NB-UVB fell from 18 to 9 and the medium-dose UVA1 group fell from 19 to 10. In both cases in the between-group analysis it was reported that no significant difference was found.

A crossover trial compared NB-UVB and UVA1 phototherapy for 6 weeks.[365] The trial randomised 47 participants with eczema diagnosed according to the Hanifin and Rajka criteria, with a SCORAD score of ≥ 20. Participants were allowed to use emollients and moisturisers during the trial. At the end of the treatment it found no significant differences between the two treatments in the reduction in pruritus (NB-UVB , 25.2% SD ± 30.5% reduction for treatment compared to 16% SD ± 61.8% for UVB1 (p = 0.5); eczema severity measured using SASSAD, the NB-UVB group had a 39.4% SD ± 24.1% reduction compared to 43.7% SD ± 31.4% for UVA1 (p=0.5); and quality of life measured using Skindex-29, the NB- UVB group had a 16.5% SD ± 17.6% reduction compared to12.7% SD ± 18.8% reduction for UVA1 (p = 0.1).

A left/right within-person trial compared NB-UVB in combination with 1% pimecrolimus against NB-UVB monotherapy.[366] The trial randomised 26 children aged 5–17 years to either half-body UVB and whole-body pimecrolimus or whole-body UVB and half-body pimecrolimus. For combination treatment compared with pimecrolimus alone, there was no significant difference in the reduction of severity from baseline (p = 0.084). This was also the case for combination treatment compared with NB-UVB treatment alone (p = 0.059). The combination treatment and each of the treatments alone all reduced the baseline severity of eczema by around 50%. All three treatments also reduced the severity of pruritus by around 3 points.

A multicentre, two-arm trial (n=180) compared synchronous balneotherapy, in which the participants were immersed in a bath containing dead sea salts at a concentration of 10% and given UVB (311 nm) phototherapy, with UVB (311 nm) phototherapy monotherapy.[367] There was no significant difference in mean quality of life between the treatment groups at the end of treatment [synchronous balneotherapy 4.6 (SD 6.8) vs. UVB monotherapy 4.0 (SD 5.5); p = 0.98]. Disease-specific quality of life was measured using the Freiburg Quality of Life Index and it was reported that there was no significant difference between the groups at the end of treatment. The participants assessed their global impression of treatment on a 6-point scale and the proportion of participants with a score of 'good or 'very good' at the end of treatment was statistically significantly different between the groups (synchronous balneotherapy 73.6% vs. phototherapy only 55.4%; p = 0.002) and was also significantly different at 1 and 6 months after the end of treatment. There was a statistically significant difference in the reduction from baseline in the severity of eczema (primary outcome), measured using the SCORAD index, between the synchronous balneotherapy group [61.8 (SD 14.1) to 25.6 (SD 22.0)] and the UVB monotherapy group [61.5 (SD 12.4) to 34.6 (22.3)] at the end of treatment (after 35 treatments) (p = 0.004).

Conclusion: Although the evidence base of RCTs has increased considerably since the last NIHR HTA systematic review, the field is still severely hampered by poor design and reporting problems including failure to register trials and declare primary outcomes, small sample size, short follow-up duration and poor reporting of risk of bias. Key areas for further research identified by the review include the optimum use of emollients, bathing frequency, wash products, allergy testing and

antiseptic treatments. More studies need to be conducted in a primary care setting where most people with eczema are seen in the UK. Future studies need to use the same core set of outcomes that capture patient symptoms, clinical signs, quality of life and the chronic nature of the disease.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Garritsen, F. M. *Br J Dermatol* 2014; **170**:501-13.	Yes	Yes	Yes (up to 26 October 2012) MEDLINE, EMBASE, CENTRAL, Global Resource of EczemA Trails (GREAT), PubMed, prospective trail registers	Yes (GRADE)	Yes	RCTs

Comments: Systematic review to evaluate the effect of treatment with photo(chemo)therapy in patients with AD and to make treatment recommendations on basis of the evidence. Studies limited to palmoplantar or dyshidrotic eczema and studies without clinical endpoints were excluded. No studies focusing on children were found. The identified RCTs were generally clinically and qualitatively heterogeneous and therefore a formal meta-analysis was not feasible.

Summary: Only six of the 19 studies included were on NB-UVB (n=188). Three of these were within-patient studies[363,364,368]

Three studies, including two small bilateral comparison studies and one larger crossover trial, compared NB-UVB and MD-UVA1.[364,365,368] No significant differences were seen for the reduction of the SASSAD score, SCORAD, pruritus or for the improvement of the Skindex-29 directly after treatment[364,365,368] nor after a follow-up period of 4 weeks.[364] NB-UVB was significantly better than MD-UVA1 for the reduction in the Leicester Sign Score in one study (n=9: $p = 0.02$),[368] but not in another (n=13).[364]

In a low-quality study (n=73) in which the use of moderate-to-potent topical steroids was permitted, results were in favour of NB-UVB compared with UVA and visible light for the reduction of the extent of disease, pruritus and the improvement of sleep directly after treatment and for the extent of disease also after a follow-up period of 3 months (no statistical significance mentioned).[363]

In a small, half-side comparison study (n=12) no significant difference was seen between bath PUVA and NB-UVB for a decrease of SCORAD directly after treatment nor after a follow-up period up to 1 year (week 2, $p = 0.09$; week 4, $p = 0.51$; week 6, $p = 0.48$; 1 year, p-value not mentioned).[369]

Balneophototherapy with NB-UVB was significantly better than NB-UVB alone for the reduction of SCORAD directly after treatment ($p < 0.004$) and after a follow-up

period of 6 months ($p < 0.04$) in a large and adequately powered study. No significant differences were seen in terms of quality of life (FLQA-d).[367]

Conclusion: On the basis of the included evidence, NB-UVB and UVA1 appeared the most effective treatment modalities for the reduction of clinical signs and symptoms. No serious side-effects were reported. Further well-designed, adequately powered RCTs are required.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Meduri, N. B. *Photodermatol Photoimmunol Photomed* 2007; **23**:106-12.	Yes	Yes	Yes (up to May 2006) MEDLINE, Cochrane Central Register of Controlled Trails (English only)	Unclear, not reported	Yes	Controlled clinical trails

Comments: Systematic review on the treatment of AD with phototherapy. Studies limited to hand dermatitis and studies in which subjects were allowed unmonitored use of topical corticosteroids or immunomodulators were excluded.

Summary: Nine trials that met the inclusion criteria were identified, only 2 looked at NB-UVB.[363,368] These two trials demonstrated that NB-UVB is more effective than either broadband UVA or UVA1 for managing chronic AD. NB: These have been summarised in the previous SR.

Conclusion: On the basis of available evidence, NB-UVB should be used for the management of chronic AD.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Yes	Yes	Yes (January 1966-June 2004 PubMed)	Yes (GRADE)	Yes	RCTs, open prospective studies and retrospective

						observations

Comments: Systematic review on the therapeutic use of NB-UVB for skin disorders other than psoriasis. Open prospective studies with <5 patients and retrospective observations on less than 15 patients (per diagnosis) were excluded. Reports on non-conventional NB-UVB such as NB-UVB microphototherapy or similar UV sources such as 308 nm UVB excimer laser therapy were not included. The quality of the evidence was high to moderate.

Summary: Nine studies were identified (n=719), including 3 RCTs,[363,368,369] 5 open prospective studies[370-374] and 1 retrospective observation.[375] The RCTs showed NB-UVB to be more effective than medium dose UVA1, BB-UVA and visible light and equally effective as bath PUVA.

Similar positive results have been supported in open prospective and retrospective trials on patients with moderate to severe adult or childhood AD using the combination of NB-UVB with topical steroids.[371,372,375] In these studies, NB-UVB did not only decrease the total clinical score, but also substantially reduced the use of the steroids.

Conclusion: The best currently available data on NB-UVB in non-psoriatic conditions exist for AD and generalised vitiligo. In view of its efficacy, benefit/risk profile, and costs, NB-UVB may be considered the first-line photo(chemo)therapeutic option for moderately severe AD.

G.1.2 Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments
Darné, S. *et al.* Narrowband ultraviolet B phototherapy in children with	n=57 children with moderate-to-severe eczema	Accepted NB-UVB therapy (37)† (included 31) NB-UVB twice weekly for 12 weeks. 70% of the MED as the starting dose,	**Disease improvement: SASSAD ≤10 at 12 weeks** NB-UVB: 12 Control: 1	The cohorts were not well matched, as those with more severe eczema were naturally more inclined to take up treatment.

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moderate-to-severe eczema: a comparative cohort study. *Br J Dermatol* 2014; **170**:150-6. Prospective, single centre April 2009-April 2010, UK **STRATA**	NB-UVB* 13 F: 16 M Median age (range): 11 years (8-14) Ethnic origin: White (24), Bangladeshi (3), Chinese (1), other (1) Mean SASSAD: 32.1 (95% CI 27.8-36.5) Control 12 F; 14 M Median age (range): 9 years (7-12) Ethnic origin: White (16), Pakistani (3), Indian (1), Bangladeshi (3), Chinese (2), mixed race (1) Mean SASSAD: 23.1 (95% CI 19.4-26.9) Inclusion criteria: All children aged 3–16 years with moderate-to-severe eczema unresponsive to topical treatment and for whom NB-UVB phototherapy was clinically indicated Exclusion criteria: Children with mild disease, defined as a Six Area Six Sign Atopic Dermatitis score (SASSAD) <	with percentage-based dose increments (commencing with 40%, then decreasing stepwise by 10%) occurring after every two treatments as tolerated. The mean cumulative dose received was 28.6 J/cm^2 (range 10.7–46.9) Control group (unexposed) those who declined NB-UVB therapy (20) + 6 who had to be put on a waiting list (included 26)	**Disease-specific physician assessment: Mean change in SASSAD score at 12 weeks** NB-UVB: 11.6 (61% decrease: 95% CI -69% to -53%) Control: 24.8 (6% increase: 95% CI -6% to 19%) Mean difference: -13.2 (95% CI -18.7 to -7.7) **Sustained clearance/benefit: 6 months** NB-UVB: 8 Control: 0	*Only those that complete treatment are included †6 had to be put on a waiting list due to a departmental shortage of preferred time slots (so were scored monthly for 3 months permitting inclusion in the unexposed cohort) Attrition: 3 NB-UVB, transferred their care to a hospital closer to home (1), withdrew (2) Mean surface area affected [table 1] Control F/up NB-UVB mean change in SASSAD score 3 months: 11.6 6 months: 14.9 Mean differences (unpaired t-test) and 95% CI between NB-UVB and control for children's dermatology life quality index [table 2]

	NB-UVB	Control
Baseline	48%	38%
12 weeks	11%	36%
F/up 3 months	15%	
F/up 6 months	19%	

Baseline	1.2 (-4.8 to 2.3)
12 weeks	-4.3 (-7.7 to 0.8)
F/up 3 months	-5.5 (-8.8 to -2.1)
F/up 6 months	-4.2 (-8.0 to 0.5)

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	10			Treatment tolerability: very well tolerated with only one patient developing erythema sufficient to miss the next session.
Fernández-Guarino M, *et al.* Treatment of moderate and severe adult chronic atopic dermatitis with narrow-band UVB and the combination of narrow-band UVB/UVA phototherapy. *Dermatol Ther* 2016; **29**:19-23. Prospective, open observational, however patients were randomised to treatment, November 2011-March 2014, Spain	n= 26 chronic atopic dermatitis (AD) NB-UVB + UVA 7 F: 3 M Mean age: 46.7 years Clinical form: lichenified (8), prurigo (2) Skin type: I-II (7), III-IV (3) NB-UVB 6 F: 10 M Mean age: 34.88 years Clinical form: lichenified (12), prurigo (4) Skin type: I-II (5), III-IV (11) Inclusion criteria; Adults with more than the 50% of the total body surface area (TBSA) affected, with no response to topical treatment and oral corticoids, and patients with eczema (present at least for one month).	Combination NB-UVB and UVA (10) Initial doses were determined by the patient skin phototype. The dose of irradiation was increased by 10% in patients treated with UV-UVB that did not present erythema. If symptomatic erythema appeared, the irradiation dose was reduced to 20%. The increase of the irradiation dose in patients also treated with UVA was determined by the patient skin type (0.5 J/cm^2 for skin type I-II, and 1 J/cm^2 for skin type III-IV). Treated 3 times a week. NB-UVB monotherapy (16) Same regimen The mean value of cumulative doses of NB-UVB and the mean number of performed sessions were similar between both groups of patients (p>0.05).	**Disease improvement: clearance rate >75% of the initial affected TBSA** Combination: 5 Monotherapy: 11	Attrition: NB-UVB (2 stopped treatment due to erythema) The mean value for the duration of the response was significantly higher in patients treated with NB-UVB monotherapy, 10.1 months versus 6.8 months (p≥0.05).

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G.2.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments
Dayal S, *et al.* Narrowband UV-B phototherapy in childhood atopic dermatitis: efficacy and safety. *An Bras Dermatol* 2017; **92**:801-6. Prospective, open-label non-comparative trail, India F/up; 2 years **STRATA**	n=30 children with moderate to severe atopic dermatitis 15 F: 15 M Mean age (range): 8.13 years (4-14) Mean %BSA (SD): 34.13 (16.9) Severity: moderate (27), severe (3) Inclusion criteria: Paediatric patients aged 4 to 14 years having atopic dermatitis diagnosed on basis of the UK refinement of Hanifin and Rajka's diagnostic criteria and having moderate to severe atopic dermatitis (Scoring Atopic Dermatitis; SCORAD index > 25) Exclusion criteria: history of impaired renal or hepatic function, uncontrolled infected eczema, claustrophobia, intolerance or previous failure to phototherapy, photosensitivity or photo-mediated disorders. Patients who had taken psoralen therapy, NB-UVB,	NB-UVB Twice a week on non-consecutive days for 3 months. Initial dose of UV-B was 50 mJ/cm^2, which was determined on the basis of patient's skin type. The irradiation dose was increased by 10% on each subsequent visit. The dose was not increased if there was any trace of erythema. In case of symptomatic erythema with or without oedema/blistering, further treatment was withheld till symptoms subsided. After resolution of symptoms, the dose was reduced to 50% of the last dose and subsequent increments were by 10%.	**Disease improvement: clearance at 3 months** 27 6th treatment: 5 12th treatment: 3 18th treatment:13 24th treatment: 6 **Disease-specific physician assessment: Mean SCORAD index score (SD)** Baseline: 30.42 (7.9) 6th treatment: 14.01 (5.8) 12th treatment: 11.41 (5.89) 18th treatment: 8.89 (4.25) 24th treatment: 7.82 (3.72)	**Author's conclusions**: NB-UVB is an efficacious and safe modality of treatment in childhood atopic dermatitis with good therapeutic index and minimal side effects.

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	systemic steroids and other immunosuppressant within 3 months.		**Disease-specific physician assessment: VAS mean improvement in pruritus (SD)** Baseline: 5.83 (1.44) 24th treatment: 0.76 (1.56) **Disease-specific physician assessment: VAS mean reduction in sleep loss** Baseline: 2.73 (2.099) 24th treatment: 0.1 (0.402)	
			Sustained clearance: Mean SCORAD index score (SD) 6 months: 8.09 (3.41) 1-year: 10.29 (3.83) 2 years: 15.34 (5.08)	

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			Minor adverse events Reactivation of herpes labialis (1) Chickenpox or reactivation of chickenpox (1)	
Clayton TH, *et al.* The treatment of severe atopic dermatitis in childhood with narrowband ultraviolet B phototherapy. *Clin Exp Dermatol* 2007; **32**:28-33. Retrospective, single centre (June 1999-June 2005), UK **STRATA**	n= 60 children with severe atopic dermatitis 29 F: 31 M Median age (range): 12 (4-16) years	NB-UVB Course of 10 treatments. Initial dose at 70% of the MED and subsequent increments of 20% three times per week. The increment regimen was modulated following a standard protocol according to erythema response 50 children completed >10 exposures	**Disease improvement: clinical response** Minimal residual activity/clear: 20 Good: 10 Moderate: 13 No improvement: 7 **Sustained clearance: > 6 months** 7/14 followed up that were clear remained so	Attrition: 10: episode of painful erythema (1), reactivation of herpes simplex (1), failed to complete course of treatment (8) **F/up** (of 14 of which were clear) Sustained clearance 3-months: 14 6-months: 9 **Author's conclusion**: NB-UVB is an effective treatment for children with severe AD. Children with MEDs >390 mJ /cm^2 are more likely to clear. Further studies are needed to evaluate the efficacy of NB-UVB and long-term safety in treating

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			Minor adverse events 2 Episode of Grade III erythema (1) Reactivation of herpes simplex (1)	children with severe AD.
Eustace K, Dolman S, Alsharqi A *et al.* Use of Phototherapy in Children. *Pediatr Dermatol* 2017; **34**:150-5. Retrospective, single tertiary paediatric dermatology centre (June 2012-December 2013), UK.	n=75* children including 48 with atopic dermatitis 40 F: 35 M Mean age (range): 10.6 years (3-17) Severe (79%)	NB-UVB (44) Initial dose of 70% of the MED. NB-UVB was administered three times per week, with the dose increased in 20% increments per treatment except for those with skin type 1, who were increased in 10% increments. Mean number of treatments (range): 28.9 (17-40) Hand and foot PUVA (4) 8-methoxypsoralen bath lotion 1.2%. Treatment was administered twice a week. Hands, feet, or both were soaked for 15 minutes before exposure to UVA and then doses of 0.5 J/ cm^2 were administered, except in children with skin types 1 and 2, in whom 0.25 J/cm^2 was administered to the dorsal surfaces. Mean number of treatments (range):	**Disease improvement: clinical response** NB-UVB Clear/almost clear: 76% Hand and foot PUVA Clear/almost clear: 1 Moderate: 2 **Sustained clearance: 12 months** 25/48 remained clear NB-UVB: 24 Hand and foot PUVA: 1	Attrition: 13: NB-UVB, failed to attend (9), developed polymorphic light eruption (1), stopped due to burns (1); PUVA, 1 failed to complete the course *psoriasis (21), pityriasis lichenoides chronica (3), vitiligo (1), nodular prurigo (1), granuloma annulare (1) **Author's conclusion**: Phototherapy can reduce disease burden in individuals with severe AD and should be considered as a second-line therapy if standard topical regimens are unsuccessful.

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		17 (11-24). Mean cumulative dose: 15.1J/cm^2	**Minor adverse events** Burns (1) Developed herpes simplex virus (2) Developed impetigo (1)	
Pavlovsky M, *et al.* Narrow band UVB: is it effective and safe for paediatric psoriasis and atopic dermatitis? *J Eur Acad Dermatol Venereol* 2011; **25**:727-9. Retrospective, single centre (1998-2006), Israel Median f/up: 3 years **STRATA**	n=129 * children including 41 with atopic dermatitis who had failed previous intensive topical therapy 23 F: 18 M Mean age (SD): 13 (4.12) years Inclusion criteria: ≤18 years suffering from AD and psoriasis, who had undergone NB-UVB	NB-UVB Initial dose of NB-UVB was determined on the basis of the patient's skin type (Fitzpatrick classification). NB-UVB was administered three times a week to the children treated as outpatients and six times a week to the hospitalized children. For treatment protocol see Pavlotsky F, Barzilai A, Kasem R, Shpiro D, Trau H. UVB in the management of early stage mycosis fungoides. J Eur Acad Dermatol Venereol 2006; 20: 565–572. Mean cumulative dose 51.6 J/cm^2	**Disease improvement:** Clearance: 9 Good response: 16 Partial response: 11 **Serious adverse events** No serious short-term side effects including at median follow-up of 3 years. **Minor Adverse events:** Burn (1)	Attrition: 5 *psoriasis (88) In the responding children, the median duration of remission was 5 months for AD patients **Author's conclusion**: NB-UVB may be considered as a viable therapeutic option in children with AD. Children who are treated by phototherapy should remain under annual dermatologic observation. To determine true carcinogenic risk of UV therapy, longer follow-up is essential.
Jury CS, *et al.* Narrowband ultraviolet B (UVB) phototherapy in children. *Clin Exp*	n=77 children treated with NB-UVB for a skin condition, including atopic eczema (25)	NB-UVB A MED was established in 42% (32 /77) of patients, and these received a starting dose of 50% of their MED;	**Disease improvement: clinical response**	*psoriasis (35), alopecia areata (6), polymorphic light eruption (3), acne (2), hydroa vacciniforme (2), pityriasis

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Dermatol 2006; **31**:196-9. Retrospective review, two hospitals (1996-2002), UK **STRATA**	42 F: 35 M Median age (range): 12 years (4-16) Inclusion criteria: All children aged 16 years or under at the time of treatment	the rest received an empirical starting dose. A regimen of 20% increments was used in most cases, reducing to 10% increments where necessary. Patients attending for treatment of photodermatoses were generally treated with a low increment regimen, increasing by 10% each treatment. Median number of treatments 24 (range 3-46)	Clear: 17 (68%) No better: 4 (16%) Not recorded: 4 (16%) **Serious adverse events** Herpes simplex infection (2) There was also one varicella zoster reactivation, but original skin condition isn't stated	lichenoides chronica (2), pityriasis rubra pilaris (1), non-bullous ichthyosiform erythroderma (1) Anxiety was a significant problem for five patients (median age 7 years; range 4–15) **Author's conclusion**: NB-UVB phototherapy is a useful and well-tolerated treatment for children with severe or intractable inflammatory skin disease, but concerns remain regarding long-term side-effects.
Mok ZR, *et al.* Is phototherapy useful in the treatment of atopic dermatitis in asian children? A 5-year report from singapore. *Pediatr Dermatol* 2014; **31**:698-702. Retrospective, single centre (2004-2008), Singapore **STRATA**	n=25 children with atopic dermatitis (most with >70% BSA involvement) 12 F: 13 M Age range: 7-15 Chinese (22), Indian (2), Malay (1) all with skin type IV-VI Inclusion criteria: <16 years	NB-UVB (15) Initial dose, based on Fitzpatrick skin phototypes IV to VI, ranged from 250 to 400 mJ/cm^2. The dose was increased by 10% to 20% of the previous dose if previous treatment caused no or slight erythema. Treatment frequency was two to three times per week during the initial treatment phase, reduced to one to two times per week when AD had improved. Combination NB-UVB and UVA (9)* Initial dose was 1 J/cm^2 for UVA and 100 mJ/cm^2 for NB-UVB, regardless of Fitzpatrick skin phototype. The	**Disease improvement: ≥70% improvement** NB-UVB: 10 Combination: 4 **Serious adverse events** NB-UVB Eczema hepeticum (1) Severe sunburn reaction (1) Combination Eczema hepeticum	* Combination UVA and BB-UVB (2) †Only reported in the 10 that improved NB-UVB: Poor response (3), worsening of symptoms (1) Combination: Moderate response (1), poor response (3), worsening of symptoms (1) NB: Numbers don't add up **Author's conclusion:** Phototherapy is a useful adjunct in the treatment of moderate to severe AD in children. More than half of the patients treated with NB-UVB or combined UVA and

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		dose was increased by 0.5 to 1 J/cm^2 for UVA and 50 to 100 mJ/cm^2 for NB-UVB if previous treatment caused no or slight erythema. Same regimen.	(1)	NB-UVB improved with phototherapy.
			Sustained clearance: 1-year follow-up NB-UVB: 9	
			Reduction in other therapy NB-UVB: The 10 patients who responded to treatment reported using decreasing amounts of topical corticosteroids	
			Minor adverse events: skin peeling† NB-UVB 3/10	

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Pasić A, *et al.* Phototherapy in pediatric patients. *Pediatr Dermatol* 2003; **20**:71-7. Case series, Phototherapy department (1996-2000), Croatia **STRATA**	n=57* children with skin diseases, including 21 with atopic dermatitis involving at least 40% BSA 14 F: 7 M Mean age (range): 11.5 years (4-15) Skin type: II (11), III (10)	Combination NB-UVB and UVA The initial doses of UVA and NB-UVB were determined on the basis of the patient's skin type according to the classification of Pathak.[Pathak, 1976) Therapy was administered three times a week in the children treated as outpatients and five times a week in hospitalized children. At each session the dose of irradiation was increased by 10% if there was no erythema. It was not increased if there was any trace of erythema. Mean cumulative NB-UVB dose (range): 6.14 J/cm^2 (1.3–10.42 J/cm^2)	**Disease improvement: reduction in SCORAD index** Excellent (>90%): 9 Good (70%-90%): 5 Moderate (50-70%): 7	*psoriasis (20), pityriasis lichenoides (9), localized scleroderma (6), systemic scleroderma (1) **Author's conclusion**: Phototherapy and PUVA bath are valuable and safe therapeutic options for selected children who do not respond to other treatments.
Nabi H, *et al.* Efficacy and safety of narrowband ultraviolet B therapy in moderate to severe atopic dermatitis. *J Pak Assoc Dermatol* 2011; **21**:106-8. Case series, skin clinic, Lahore	n=16 moderate to severe atopic dermatitis 10 F: 6 M Age range: 6-70 years Exclusion criteria: local treatment with corticosteroids or other medical topical agents within the last 2 weeks or systemic treatment with antibiotics, corticosteroids or oral immunosuppressive drugs within the last 4 weeks.	NB-UVB Three times a week on alternate days. Doses were gradually increased according to the standard protocol and no additional systemic or topical treatment except emollient ointment was permitted. Mean cumulative dose of 25.91 J/cm^2 NB-UVB was given in a mean of duration 5.2 weeks treatment	**Disease improvement: mean atopic dermatitis score (range)** Baseline: 32.2 (20.2-45.5) End: 14.2 (6.2-12.4)	**Author's conclusion**: NB-UVB appears to be a promising treatment for AD, but large patient series, different dosing schedules and long- term safety considerations should be carefully evaluated in the future.

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Tintle S, *et al.* Reversal of atopic dermatitis with narrow-band UVB phototherapy and biomarkers for therapeutic response. *J Allergy Clin Immunol* 2011; **128**:583-93.e1-4. Prospective study, USA	n=12 with moderate-to-severe chronic atopic dermatitis 3 F: 9 M Median age (range): 43 years (24-51)	NB-UVB 3 times weekly for up to 12 weeks. (mean, 23.5 sessions; range, 9-48 sessions). Patients were allowed to use emollients only with no additional pharmacologic treatment during the study period.	**Disease improvement: decease of ≥50% in SCORAD index score** 12/12* **Disease improvement: mean decrease in SCORAD index score (SD):** 81.1% (8.7%)	*11/12 were judged to be responders using histologic (>40% reduction in pathologic epidermal thickness) criteria. **Author's conclusion**: Our study shows that resolution of clinical disease in patients with chronic AD is accompanied by reversal of both the epidermal defects and the underlying immune activation. By showing reversal of the AD epidermal phenotype with a broad immune-targeted therapy, our data argue against a fixed genetic phenotype.
Vähävihu K, *et al.* Narrowband ultraviolet B treatment improves vitamin D balance and alters antimicrobial peptide expression in skin lesions of psoriasis and atopic dermatitis. *Br J Dermatol* 2010; **163**:321-8. Prospective study, Finland	n= 56*, including 18 with AD 9 F: 9 M Mean age: 48 years	NB-UVB 15 NB-UVB exposures, given three times a week. Initial NB-UVB dose for all participants was 0.13 J /m^2 corresponding to one standard erythema dose (SED). Thereafter the dose was gradually increased up to 1.19 J/cm^2 (9.5 SED). The mean cumulative UVB dose received after 15 NB-UVB exposures was 8.88 J/cm^2 which corresponds to 71.5 SED.	**Disease improvement: mean SCORAD score (range)** Baseline: 37.1 (12.9–74.0) Post-treatment: 14.2 (4.8– 41.2) Mean SCORAD reduction 22.9 *p* <0.001	Attrition: 5/56 * psoriasis (18), healthy subjects (15), the 5 who didn't complete aren't factored in **Author's conclusion**: In addition to a significant improvement of AD, NB-UVB treatment effectively corrects vitamin D insufficiency. It also increases cathelicidin and decreases HBD2 levels in healing skin lesions AD. This effect might be mediated by improved vitamin D balance and the local cytokine network.

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Appendix H: Skin diseases: Hand & foot (palmoplantar) dermatosis

H.1 Summary of included studies

H.1.1 Systematic reviews

H.1.1.1 Palmoplantar psoriasis

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Almutawa, F. *Photodermatol Photoimmunol Photomed* 2015; **31**: 5-14.	Yes	Yes	Yes (January 1980 to June 2012) MEDLINE, EMBASE and Cochrane databases (Limited to English only)	Assessed, but not reported	Yes	RCTs, non-randomized clinical trials, case series

Comments: Systematic review and meta-analyses evaluating the pooled efficacy of and short-term safety of targeted UVB phototherapy (including excimer (308-nm) laser, excimer (308-nm) light, and localized NB-UVB (311–313-nm) light), topical PUVA, and PDT in the treatment of localized plaque psoriasis including palmoplantar psoriasis. The outcome measures match those set in the guidelines. Primary outcome, percentage of patients who showed at least 75% reduction in their severity score. Secondary outcome, side effects. These outcomes match some of our outcomes.

Summary: Two within-patient RCTs compared targeted UVB with PUVA in palmoplantar psoriasis (PPP) patients,[104,105] One used localized NB-UVB (311–313-nm) light and showed localised NB-UVB to be less effective than PUVA.[105] The other used excimer (308-nm) light as the source of targeted UVB phototherapy and showed no difference between the two treatments on the palms and soles.[104]

A meta-analysis of three RCT included by the authors using random effect model found topical PUVA to be more effective than non-laser targeted UVB [(OR: 3.48, 95% CI 0.56–21.84, p = 0.183). The pooled effect estimate of the efficacy (75% reduction in severity score) of topical PUVA, targeted UVB, and PDT were as follows: 77% (topical PUVA), 61% (targeted UVB), and 22% (PDT). However, one of the three studies was on plaque-type psoriasis and compared topical psoralen + NB-UVB to topical PUVA so not relevant to PPP.

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Subgroup analysis of the two modalities of targeted UVB phototherapy for palmoplantar psoriasis suggested excimer (308-nm) light (59%) to be more effective than NB-UVB (311– 313-nm) light (49%).

Conclusion: Topical PUVA and targeted UVB phototherapy are effective in the treatment of localized psoriasis. Non-laser targeted UVB phototherapy seems less effective than topical PUVA.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Chen X, *Cochrane Database Syst Rev* 2013:Cd009481	Yes	Yes	Yes (up to August 2013)	Yes	Yes	RCTs

COMMENTS: Cochrane review to assess the effects of NB-UVB phototherapy versus broad-band ultraviolet B (BB-UVB) or psoralen ultraviolet A (PUVA) photochemotherapy for psoriasis, including palmoplantar psoriasis (PPP). Some of the outcome measures match those set in the guideline.
Primary outcomes: Participant-rated global improvement (no papers addressed this outcome); Percentage of participants reaching Psoriasis Area and Severity Index (PASI) 75 (which meant equal to or more than 75% reduction in PASI score); Withdrawal due to side-effects; Clearance rate (Clearance was defined as no lesions of psoriasis or minimal residual activity (MRA)).

Secondary outcomes: The physicians Global Evaluation score (no papers addressed this outcome); Dermatology Life Quality Index (DLQI);Number of treatments to clearance; Cumulative UV dose to clearance; Time to clearance; Clearance lasting 6 months; PASI score reduction (before and after treatment); Time to PASI 75; Relapse rate; Duration of remission; Withdrawal due to poor response; Clinical improvement; Reduction of peripheral T cells; Tolerability; Adverse events. Some of these outcomes matched some of our outcomes.

Both NB-UVB and topical PUVA were performed three times weekly.

Summary: One small within patient RCT of 25 participants was included. There were no significant differences between NB-UVB treated sides and topical PUVA treated sides in terms of clearance rate (RR 0.09, 95% CI 0.01 to 1.56; N = 50; low quality).[105]

The following adverse events: phototoxicity, palmar hyperpigmentation, and mild xerosis were reported. One participant dropped out because of a phototoxic reaction in the PUVA treated side. The incidence of palmar hyperpigmentation was significantly lower in the NB-UVB treated side than in the PUVA treated side (0%

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versus 52.4%; RR 0.04, 95% CI 0.00 to 0.69).

Conclusion: The small RCT did not detect a statistically significant difference in the efficacy of NB-UVB and topical PUVA for clearing PPP. Larger prospective studies are needed to confirm this.

H.1.2 Randomised controlled trials

H.1.2.1 Palmoplantar eczema

Study/ design	Population	Intervention & Comparator	Outcomes	Comments
Brass, D. *et al. Br J Dermatol* 2018; **179**:63-71. Pilot RCT, ISRCTN18213910, single centre (August 2012-April 2014), UK	n=60 palmar hand eczema 38 F: 22 M Median age (range): 50 years (22-73) Predominant type: irritant contact dermatitis (8), allergic and irritant (2), atopic (9), atopic and irritant (7), vesicular (6), hyperkeratotic (28) Eczema at other sites: 25 Inclusion criteria: Age >18 years; any type of hand eczema; palmar eczema not responding to topical treatments; no systemic treatments for 3 months Exclusion criteria: Significant	NB-UVB (30) Twice weekly for 12 weeks. The initial dose was 0.5J/cm^2 and was increased by 20% increments to a maximum of 10 J/cm^2. The maximum potential cumulative dose was 123 J/cm^2. Doses were reduced if erythema developed. Once symptoms had settled patients were restarted at the last dose that had been tolerated without side-effects. Immersion PUVA (30) Same regimen. Patients' hands were immersed in psoralen solution (0.5 mL of 8-methoxypsoralen 1.2% in 2 L of tap water). Initial dose of 0.5J/cm^2 increasing for each treatment (1.0, 1.5, 2, 3, 4, 5, 6 J/cm^2). The maximum dose was 6 J/cm^2 and the maximum potential cumulative dose	**Disease improvement: PGA response (0 or 1) at 12 weeks** NB-UVB: 2 'clear', 5 'almost clear' PUVA: 5 'clear', 8 'almost clear' **Serious adverse events** NB-UVB: 0 PUVA: 1 **Change in psychological well-being: DLQI** Similar	Attrition: 14. NB-UVB (7), PUVA (7) including 1 who received no treatment

	eczema on the dorsal surface of the hands; phototherapy within the last 3 months, sunbed use within the last 3 months, current involvement in other investigational studies, pregnancy, clinical evidence of infection	125 J/cm^2 (incremental doses over 3 weeks plus 18 treatments x 6 J/cm^2).	**Disease-specific physician assessment: median modified total lesion and Symptom Score (mTLSS) (IQR):** Similar NB-UVB: Baseline: 9 (6.8-11) Week 12-14: 4 (2-8) PUVA: Baseline: 9.5 (6.8-12) Week 12-14: 3 (1-6)	
			Minor adverse events Moderate NB-UVB: 10 (14 events, 8 treatment related) PUVA: 2 (2 events, none treatment related) Forest plotted the treatment related	

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H.1.3: Non-randomised comparative studies

H.1.3.1: Palmoplantar psoriasis

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Gupta, S. K. *et al*. Comparative therapeutic evaluation of different topicals and narrow band ultraviolet B therapy combined with systemic methotrexate in the treatment of palmoplantar psoriasis. *Indian J Dermatol* 2011; **56**:165-70. Out-patient department of skin (July 2007-December 2008), India	n=98 palmoplantar psoriasis Inclusion criteria: no systemic or topical antipsoriatic therapy for at least 1 month prior to the study, except for a bland emollient.	Group 1: Combination NB-UVB plus methotrexate (17) NB-UVB was given 3 times a week for up to 8 weeks. Initial dose 280 mJ/cm^2 increased by 20 mJ/cm^2 each time. Oral methotrexate 7.5 mg weekly Group 2: NB-UVB (12) Same regimen Group 3: Bland emollient + methotrexate (8) Same regimen Group 4: Combination halobetasol propionate ointment plus methotrexate (20) Same regimen, plus halobetasol propionate 0.05% ointment weekly Group 5: Combination salicylic acid plus methotrexate (11) Same regimen, plus salicylic acid 6% ointment once a day Group 6: Combination topical tacrolimus 0.1% plus methotrexate (4)	Disease-specific physician assessment: >50% improvement in ESIF (erythema, scaling, induration and fissuring) Palmar lesions Group 1: 17/17 Group 2: 11/12 Group 3: 8/8 Group 4: 18/20 Group 5: 10/11 Group 6: 4/4 Group 7: 8/9 Group 8: 14/17 Plantar lesions Group 1: 17/17 Group 2: 11/12 Group 3: 8/8 Group 4: 18/20 Group 5: 8/10 Group 6: 3/4 Group 7: 8/9 Group 8: 14/17	Females were included only if they were willing to avoid conception during and for 4 months subsequently to the conclusion of the study. **Sustained clearance benefit** Recurrence after stopping treatment Group 1: 3/17 (17.65%) Group 2: 4/12 (33.33%) Group 3: 3/8 (37.5%) Group 4: 14/20 (70%) Group 5: 7/11 (63.64%) Group 6: 2/4 (50%) Group 7: 3/9 (33.33%) Group 8: 8/17 (47.06%) **Minor adverse events** Side effects (irritation and burning) Group 1: 3/17 (17.65%) Group 2: 2/12 (16.67%) Group 3: 1/8 (12.5%) Group 4: 9/20 (45%) Group 5: 3/11 (27.27%) Group 6: 1/4 (25%) Group 7: 6/9 (66.66%) Group 8: 7/17 (41.18%)

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		Same regimen Group 7: Combination topical tazarotene 0.1% plus methotrexate (9) Same regimen Group 8: Combination crude coal tar ointment plus methotrexate (17) Same regimen		
Redon, E. *et al.* [A retrospective efficacy and safety study of UVB-TL01 phototherapy and PUVA therapy in palmoplantar psoriasis]. *Ann Dermatol Venereol* 2010; **137**:597-603. November 2001-April 2008, single centre, France NB: This paper is in French (extracted with the help of Google translate)	n=92 palmoplantar psoriasis (118 flares) NB-UVB 16 F: 27 M Mean age: 43 years Skin type: II (6), III (34), IV (2), V (1) Location: hands (28), hands & feet (10), feet (5) PUVA 22 F: 27 M Mean age: 49 years Skin type: II (11), III (31), IV (6), V (1) Location: palms (15), palms & soles (32), soles (2)	NB-UVB (43: 56 flares) TL01 3 times a week. Initial dose was determined by phototype. Dose was gradually increased up to a maximum dose. PUVA (49: 62 flares) Same regimen	**Disease improvement: improvement or clear skin (at end of treatment) after a flare** NB-UVB: 29/56 PUVA: 38/62	**Adverse effects** NB-UVB: 20% (erythema 18%, first-degree burns 7%) and treatment was discontinued as a result in only 4% of cases. PUVA: 50%, mainly due to methoxypsoralen intake

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H.2: Narrative findings

H.2.1: Within-patients randomised controlled trials

H.2.1.1: Palmoplantar eczema

Study/ design	Population	Intervention & Comparator	Outcomes	Comments
Sezer, E. *Photodermatol Photoimmunol Photomed* 2007; **23**:10-4. Randomised, controlled, prospective left-right comparison of hands, single centre, Turkey	n=15 recalcitrant chronic hand eczema of dry and dyshidrotic types 6 F: 9 M Age range: 18-73 years Inclusion criteria: diagnosis of biopsy proven chronic hand eczema of dry and dyshidrotic types of more than 4-month duration in which conventional therapies, including topical and oral corticosteroids, topical anthralin, tar, pimecrolimus and emollients, proved ineffective. Exclusion criteria: diagnosis of hyperkeratotic hand eczema,	Local NB-UVB TL-01 lamp, three times a week over a 9-week period. Initial dose was 150 mJ/cm^2. An increasing percentile dose schedule based on an increase of 20% was used in every session, until a final dose of 2000 mJ/cm^2 was reached. Paint-PUVA Same regimen. Hand painted with 0.1% 8-methoxypsoralen (MOP) in a hydrophilic water/oil emulsion 15 min before exposure. Initial dose of PUVA was 1.0 J/cm^2 with an increase of 0.5 J/cm^2 in every second session until a final dose of 7.5 J/cm^2 was achieved.	**Disease improvement: Clear/marked improvement** Local NB-UVB hand Cleared: 2 Marked improvement: 9 Paint PUVA hand Cleared: 1 Marked improvement: 9 **Disease-specific physician assessment: Mean total clinical scores at 9 weeks** Local NB-UVB hand: 75.43% Paint-PUVA: 75.48% No significant difference	Attrition: 3: treatment failure (1), non-compliance (2) F/up 10 weeks (12) NB-UVB treated hand Relapse-free (8) Moderate relapse (1) Mild relapse (3) Paint-PUVA treated hand Relapse-free (6) Severe relapse (1) Moderate relapse (1) Mild relapse (4)

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	topical treatment with corticosteroids within 2 weeks or systemic treatment with corticosteroids or other immunosuppressive agents within the last 4 weeks, unilateral disease, pregnancy.	The mean cumulative doses were 34.9 J/cm^2 for the NB-UVB phototherapy, and 111.5 J/cm^2 for the paint-PUVA treatment.	**Minor adverse events: palmar hyperpigmentation** NB-UVB: 0 Paint-PUVA: 3	

H.2.1.2: Palmoplantar pustulosis

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Su, L. N. *et al.* UVA1 vs. narrowband UVB phototherapy in the treatment of palmoplantar pustulosis: a pilot randomized controlled study. *Lasers Med Sci* 2017; **32**:1819-23. Pilot randomised controlled, observer blinded, left/right study, 2 centres (May 2015-April 2016), China	n=66 palmoplantar pustulosis (PPP) 42 F: 22 M Meana age (range0: 46.2 years (23-68) Inclusion criteria: ≥18 years, clinically and histopathologically diagnosed PPP for at least 3 months Exclusion criteria: pregnant or breastfeeding women, use of photosensitizing drug, phototherapy, or any other treatment for PPP within the last 2 months, photosensitivity,	NB-UVB 3 times a week for up to 30 sessions. The initial dose was 0.3 J/cm^2, and doses were increased by 0.1 J/cm^2 every 2 weeks to a maximum dose of 0.7 J/cm^2 UVA1 Same regimen. Each treatment session was conducted with a fixed dose of 80 J/cm^2	**Disease improvement: reduction in PPPASI 76-100% (marked improvement)** NB-UVB: 11 (34.4%) UVA-1: 22 (68.8%) **Disease-specific physician assessment: mean (SD) reduction in PPPASI score (30 sessions)** NB-UVB:4.4 (1.4) UVA-1: 6.0 (2.4) P<0.05	Attrition: 2, one from each arm

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	immunosuppressive diseases, history of melanoma or any other skin cancer		**Minor adverse events** NB-UVB: xerosis (9) UVA-1: burning sensation (6), hyperpigmentation (2)	

H.2.2 Non-comparative studies

H.2.2.1 Palmoplantar psoriasis

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Al-Mutairi, N. *et al.* Targeted phototherapy using 308 nm Xecl monochromatic excimer laser for psoriasis at difficult to treat sites. *Lasers Med Sci* 2013; **28**:1119-24. Prospective, Dermatology department (February 2011-February 2012),	n=41 scalp (26) and **palmoplantar psoriasis (15)** 7 F: 8 M Mean age (range): 41 years (22-) Site: palmar (5), plantar (6), palmoplantar (4) **Subtype; pustular (7), hyperkeratotic (8)** Inclusion criteria: Adults with resistant scalp or palmoplantar psoriasis unresponsive to class I topical steroids used either alone or	NB-UVB (15) Excimer laser (308 nm) Initial dose was based on multiples of a predetermined MED, twice weekly for a maximum 12 weeks. Cumulative dose of irradiation was 28.4-115.5 J cm^2 (mean 59.1 J cm^2) Mean number of	**Disease improvement: clearance** 6 weeks: Good: 8 12 weeks: Complete; 2 Excellent: 12 Non-responsive; 1 **(hyperkeratotic)**	Side effects were common, although insignificant and well tolerated. Side effects (5 hyperpigmentation, 3 erythema, crusting, 2 blistering, and itching) were seen in 11 patients (73.33%). **Author's conclusion:** The 308-nm excimer laser is an effective, safe, easy, and relatively quicker method for the treatment of psoriasis at difficult to treat sites, with good results in a somewhat short time.

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Kuwait	in combination with tar, calcipotriol, and or topical calcineurin inhibitors given for at least 2 months. Exclusion criteria: pregnant females, or with pre-existent or manifest cutaneous malignancy, history of photosensitivity, patients on photosensitizing drugs, erythrodermic or generalized pustular psoriasis, psoriasis greater than 20 % total BSA involvement, previous no response to UV therapy, systemic treatment with biological therapies within 6 months, all other systemic therapy for at least 4 weeks before they were enrolled in the study, and any topical treatment within 2 weeks before enrollment.	treatments to achieve clearance (equal to 90% reduction of PSI score) was 16.	**Sustained clearance: ≥6 months** **5 still demonstrated significant improvement** 2 patients relapsed at the end of 6 months **Treatment tolerability** Well tolerated	
Goldberg, D. J. *et al.* 308-nm Excimer laser treatment of palmoplantar psoriasis. *J Cosmet Laser Ther* 2011; **13**:47-9. Case series, USA	n=10 mild to severe psoriasis involving the palms and soles Age range: 18-75 years Skin type; I-III Exclusion criteria: Photosensitive dermatoses	NB-UVB Excimer laser (308 nm) two treatments a week. Patients with mild psoriasis were started at 400 mJ/cm^2, moderate psoriasis at 500 mJ/cm^2, and severe psoriasis at 600 mJ/cm^2. Mean number of sessions (range): 11 (7-14)	**Disease-specific physician assessment: PASI** Improvement between 50%-100% **Sustained clearance: 6 months** 4 Relapses seen in 60%	There was no evidence of persistent pigmentary changes or scaring. **Author's conclusion:** Success with the 308-nm excimer laser in the treatment of palmoplantar psoriasis.

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Nisticò, S. P. *et al.* A 308-nm monochromatic excimer light in the treatment of palmoplantar psoriasis. *J Eur Acad Dermatol Venereol* 2006; **20**:523-6. Open trial, Italy	n=54 palmoplantar psoriasis 25 F: 29 M Mean age: 48 years Site: palms (27), soles (19), palmoplantar (8) Inclusion criteria: Involvement of palms and soles as part of extensive psoriasis (> 30% BSA) Exclusion criteria: Erythroderma or generalized pustular psoriasis, history of skin cancers or photosensitivity-related disorders. Patients who had been on systemic medication and phototherapy for less than 8 weeks or had used treatments within the past 4 weeks.	NB-UVB Novel non-laser 308-nm monochromatic excimer light (MEL), every 7-14 days. Initial dose was calculated according to patient phototype and entity of squamous and erythematous component of the psoriatic lesions. A dosage of twice or three times the MED was used for more infiltrated lesions with a higher squamous components. Mean number of sessions 10	**Disease improvement: ≥PASI75** Week 4: 30 Week 8: 44 **Minor adverse events** Formation of vesicles and oedema were observed after three sessions (1). These resolved after a local treatment with hydrocortisone 1% ointment for 3 days.	Prolonged erythema (24–48 hours) was evidenced in 20/54 patients after the first and second sessions with a mild pruritic sensation. Complete remission: 31 Partial remission: 13 Moderate improvement: 10 Follow-up (16 weeks) 46 maintained benefit **Author's conclusion**: MEL can be considered as a valid therapeutic option for treatment of selected forms of PP.
Aubin, F. *et al.* Evaluation of a novel 308-nm monochromatic excimer light delivery system in dermatology: a pilot study in different chronic localized dermatoses. *Br J Dermatol* 2005; **152**:99-103. Prospective study, France	n=54 chronic and resistant localised dermatoses* including 17 palmoplantar pustular psoriasis, 8 chronic atopic dermatitis of the hands and 10 chronic nonatopic dermatitis of the hands	NB-UVB MEL, weekly treatments for a minimum of 5 weeks and maximum of 10 weeks. The initial dose was based on multiples of a predetermined MED, and subsequent doses were based on the response to treatment. Average incident dose rate of 50 mW/cm^2 at a tube-to-skin distance of 15 cm and with a	**Disease improvement: mean improvement** Palmoplantar pustular psoriasis: 79% Chronic atopic dermatitis of the hands: 54% Chronic nonatopic dermatitis of the hands: 46%	*plaque-type psoriasis (7), nail psoriasis (4), alopecia areata (8) F/up sustained percentage improvement Palmoplantar pustular psoriasis Significant decease at 3 and 6 months 3 months: around 50% (presented graphically) 6 months: 24% Chronic atopic dermatitis: 3 months: 54% 6 months: 28.6% Chronic nonatopic dermatitis Significant decease at 3 and 6 months (presented graphically)

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		maximum irradiating area of 512 cm^2.		3 months <20% 6 months <10% **Author's conclusion**: Preliminary results confirm the efficacy of this novel 308-nm MEL delivery system, which appears to be effective and safe for palmoplantar pustular psoriasis. To a lesser extent, plaque-type psoriasis, chronic atopic and nonatopic dermatitis of the hands and alopecia may also benefit from this treatment.
Nordal, E. J. *et al.* Treatment of chronic hand dermatoses with UVB-TL01. *Acta Derm Venereol* 2004; **84**:302-4. Prospective, open study, Norway	n=30 **psoriasis (11),** eczema (16: see below) or pustulosis of the hands (3: see below) (including psoriasis elsewhere (10), hyperkeratotic dermatitis only in the palms and a positive family history of psoriasis (1), atopic dermatitis & irritant hand eczema (10), atopic dermatitis & pompholyx (2), pompholyx (4), palmar pustulosis (3) 23 F: 7 M Mean age (range): 43 years (25-68) Skin type: I (2), II (8), III (20) Site: palmar (30), dorsal (21)	NB-UVB Initial dose of 70% of MED, with dorsal increments of 0.1 – 0.4 J/cm^2 up to 2 J/cm^2, and palmar increments of 0.2 – 1.4 J/cm^2 to a maximum of 4 – 6 J/cm^2. The treatment was given two or three times per week and continued until clearing or 9 weeks maximum (although some psoriasis continued beyond this point). Psoriasis: 20-38 treatments	**Disease improvement:** Psoriasis: 9/11 Much improvement: 5 Improvement: 4 **Treatment tolerability** (30) Most of the patients tolerated the treatment, as only eight single treatments resulted in light overdosage with temporary redness and soreness.	Attrition: psoriasis (2) – stopped treatment due to aggravation of disease (1), dropped out (1). **Author's conclusion**: UVB-TL01 seems to be helpful in the majority of patients with chronic inflammatory diseases of the hands. Psoriasis patients seem to respond somewhat better than the eczema patients, but patients with pustulosis achieved little improvement. More extensive studies with regard to proper dosing and length of treatment period ought to be carried out.
Campolmi, L. *et al.* 308 nm monochromatic excimer light for the	n=11 **palmoplantar psoriasis (7)** & palmoplantar pustulosis (4: see below)	NB-UVB MEL for 10 weeks, maximum irradiating area	**Disease improvement: PASI 75**	Follow-up (16 weeks) No relapse

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treatment of palmoplantar psoriasis. *Int J Immunopathol Pharmacol* 2002, **13**: 11-13. Prospective study, Italy	3 F: 8 M Age range: 21-64 years Patients were required to discontinue both topical treatments and photochemotherapy for 4 weeks and all systemic treatments for at least 6 months before enrollment.	512 cm^2. First session 15 seconds, increasing 5 seconds up to 90 seconds. Three times a week for 4 weeks, then twice a week for 2 weeks, then maintenance dose for 4 weeks	6 weeks: 11 Between 75-100%	**Author's conclusion**: Compared to excimer laser, MEL offers several advantages especially in the treatment of medium-large psoriatic areas such as palms and soles.

H.2.2.2 Palmoplantar eczema

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Shroff, A. *et al.* Use of 308 nm excimer laser for the treatment of chronic hand and foot eczema. *Int J Dermatol* 2016; **55**:e447-53. Retrospective, (January 2013-December 2014)	n=30 recalcitrant chronic hand and foot eczema 22 F: 8 M Mean age (range): 48 years (11-79) Site: hand (19), foot (4), both (7) Exclusion criteria: patients with clinically suspected palmoplantar psoriasis	NB-UVB Excimer laser (308 nm) single wavelength, twice weekly	**Disease improvement: clearance** Complete: 9 Almost clear: 15 **Disease-specific physician assessment: Average reduction in PGA score** 69% Before treatment: 2.77 After treatment: 0.87 **Disease-specific patient self-assessment:**	**Average reduction in modified total lesion/symptom score:** 70% ***** For these patients, maintenance therapy includes mild to moderate topical steroids, such as triamcinolone. The remaining 11 patients are still undergoing maintenance excimer treatment to achieve either full clearance or continued improvement. **Author's conclusion:** Excimer laser shows excellent and sustained efficacy for patients with refractory CHFE. Compared to other UV therapies, excimer laser offers lower cumulative doses of UV radiation by targeting specific areas. This effective treatment should be considered alone or in combination with other established or newer therapies.

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			extensive patient satisfaction after which further treatment no longer sought 19 **Sustained clearance: mean 11.3 months (range 3-36)** 19/19*	
Aubin, F. *et al.* Evaluation of a novel 308-nm monochromatic excimer light delivery system in dermatology: a pilot study in different chronic localized dermatoses. *Br J Dermatol* 2005; **152**:99-103. Prospective study, France	n=54 chronic and resistant localised dermatoses* including palmoplantar pustular psoriasis (17: see above), **chronic atopic dermatitis of the hands (8) and chronic nonatopic dermatitis of the hands (10)**	NB-UVB MEL, weekly treatments for a minimum of 5 weeks and maximum of 10 weeks. The initial dose was based on multiples of a predetermined MED, and subsequent doses were based on the response to treatment. Average incident dose rate of 50 mW/cm^2 at a tube-to-skin distance of 15 cm and with a maximum irradiating area of 512 cm^2.	**Disease improvement: mean improvement** Chronic atopic dermatitis of the hands: 54% Chronic nonatopic dermatitis of the hands: 46%	*plaque-type psoriasis (7), nail psoriasis (4), alopecia areata (8) F/up sustained percentage improvement Chronic atopic dermatitis: 3 months: 54% 6 months: 28.6% Chronic nonatopic dermatitis Significant decease at 3 and 6 months (presented graphically) 3 months <20% 6 months <10% **Author's conclusion**: Preliminary results confirm the efficacy of this novel 308-nm MEL delivery system, which appears to be effective and safe for palmoplantar pustular psoriasis. To a lesser extent, plaque-type psoriasis, chronic atopic and nonatopic dermatitis of the hands and alopecia may also benefit from this treatment.

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Nordal, E. J. *et al.* Treatment of chronic hand dermatoses with UVB-TL01. *Acta Derm Venereol* 2004; **84**:302-4. Prospective, open study, Norway	n=30 **eczema (16),** psoriasis(11: see above) or pustulosis of the hands(3: see below) (including psoriasis elsewhere (10), hyperkeratotic dermatitis only in the palms and a positive family history of psoriasis (1), atopic dermatitis & irritant hand eczema (10), atopic dermatitis & pompholyx (2), pompholyx (4), palmar pustulosis (3) 23 F: 7 M Mean age (range): 43 years (25-68) Skin type: I (2), II (8), III (20) Site: palmar (30), dorsal (21)	NB-UVB Initial dose of 70% of MED proved to be too high a dose for the dorsal aspects of the hands in the most sensitive eczema patients. Treatment regimen was adjusted to an initial dose of 0.1 – 1 J/cm^2 dorsal dose and 0.2 – 1.4 J/cm^2 palmar dose, depending on skin type, with dorsal increments of 0.1 – 0.4 J/cm^2 up to 2 J/cm^2, and palmar increments of 0.2 – 1.4 J/cm^2 to a maximum of 4 – 6 J/cm^2. The treatment was given two or three times per week and continued until clearing or 9 weeks maximum (although some psoriasis continued beyond this point). Eczema: 11-31 treatments	**Disease improvement:** Eczema: 11/16 Much improvement: 7 Improvement: 4 **Treatment tolerability (30)** Most of the patients tolerated the treatment, as only eight single treatments resulted in light overdosage with temporary redness and soreness.	Attrition: eczema (5) – stopped treatment due to need of daily topical steroids (3), dropped out (2) **Author's conclusion**: UVB-TL01 seems to be helpful in the majority of patients with chronic inflammatory diseases of the hands. Psoriasis patients seem to respond somewhat better than the eczema patients, but patients with pustulosis achieved little improvement. More extensive studies with regard to proper dosing and length of treatment period ought to be carried out.

H.2.2.3: Palmoplantar pustulosis

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Put in separate psoriasis section (see comment) Al-Mutairi, N. *et al.* Targeted phototherapy using 308 nm Xecl monochromatic excimer	n=41 scalp (26) and **palmoplantar psoriasis (15)** 7 F: 8 M Mean age (range): 41 years (22-) Site: palmar (5), plantar (6),	NB-UVB (15) Excimer laser (308 nm) Initial dose was based on multiples of a predetermined MED, twice weekly for a	**Disease improvement: clearance** 6 weeks: Good: 8	Side effects were common, although insignificant and well tolerated. Side effects (5 hyperpigmentation, 3 erythema, crusting, 2 blistering, and itching) were seen in 11 patients (73.33%).

laser for psoriasis at difficult to treat sites. *Lasers Med Sci* 2013; **28**:1119-24. Prospective, Dermatology department (February 2011-February 2012), Kuwait	palmoplantar (4) Subtype; **pustular (7),** hyperkeratotic (8) Inclusion criteria: Adults with resistant scalp or palmoplantar psoriasis unresponsive to class I topical steroids used either alone or in combination with tar, calcipotriol, and or topical calcineurin inhibitors given for at least 2 months. Exclusion criteria: pregnant females, or with pre-existent or manifest cutaneous malignancy, history of photosensitivity, patients on photosensitizing drugs, erythrodermic or generalized pustular psoriasis, psoriasis greater than 20 % total BSA involvement, previous no response to UV therapy, systemic treatment with biological therapies within 6 months, all other systemic therapy for at least 4 weeks before they were enrolled in the study, and any topical treatment within 2 weeks before enrollment.	maximum 12 weeks. Cumulative dose of irradiation was 28.4-115.5 J cm^2 (mean 59.1 J cm^2) Mean number of treatments to achieve clearance (equal to 90% reduction of PSI score) was 16.	12 weeks: Complete; 2 Excellent: 12 Non-responsive; 1 (hyperkeratotic) **Sustained clearance: ≥6 months** **5 still demonstrated significant improvement** 2 patients relapsed at the end of 6 months **Treatment tolerability** Well tolerated	**Author's conclusion:** The 308-nm excimer laser is an effective, safe, easy, and relatively quicker method for the treatment of psoriasis at difficult to treat sites, with good results in a somewhat short time.
Aubin, F. *et al.* Evaluation of a novel 308-nm monochromatic excimer light delivery system in dermatology: a pilot study in different chronic localized dermatoses. *Br J Dermatol* 2005; **152**:99-	n=54 chronic and resistant localised dermatoses* including **palmoplantar pustular psoriasis (17),** chronic atopic dermatitis of the hands (8) and chronic nonatopic dermatitis of the hands (10)	NB-UVB MEL, weekly treatments for a minimum of 5 weeks and maximum of 10 weeks. The initial dose was based on multiples of a predetermined MED, and	**Disease improvement: mean improvement** Palmoplantar pustular psoriasis: 79%	*plaque-type psoriasis (7), nail psoriasis (4), alopecia areata (8) F/up sustained percentage improvement Palmoplantar pustular psoriasis Significant decease at 3 and 6 months 3 months: around 50% (presented graphically) 6 months: 24%

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103. Prospective study, France		subsequent doses were based on the response to treatment. Average incident dose rate of 50 mW/cm^2 at a tube-to-skin distance of 15 cm and with a maximum irradiating area of 512 cm^2.		**Author's conclusion**: Preliminary results confirm the efficacy of this novel 308-nm MEL delivery system, which appears to be effective and safe for palmoplantar pustular psoriasis. To a lesser extent, plaque-type psoriasis, chronic atopic and nonatopic dermatitis of the hands and alopecia may also benefit from this treatment.
Nordal, E. J. *et al.* Treatment of chronic hand dermatoses with UVB-TL01. *Acta Derm Venereol* 2004; **84**:302-4. Prospective, open study, Norway	n=30 psoriasis(11), eczema (16) or **pustulosis of the hands (3)** (including psoriasis elsewhere (10), hyperkeratotic dermatitis only in the palms and a positive family history of psoriasis (1), atopic dermatitis & irritant hand eczema (10), atopic dermatitis & pompholyx (2), pompholyx (4), palmar pustulosis (3) 23 F: 7 M Mean age (range): 43 years (25-68) Skin type: I (2), II (8), III (20) Site: palmar (30), dorsal (21)	NB-UVB Initial dose of 70% of MED, with dorsal increments of 0.1 – 0.4 J/cm^2 up to 2 J/cm^2, and palmar increments of 0.2 – 1.4 J/cm^2 to a maximum of 4 – 6 J/cm^2. The treatment was given two or three times per week and continued until clearing or 9 weeks maximum (although some psoriasis continued beyond this point). Palmar pustulosis: 23-27 treatments	**Disease improvement:** Palmar pustulosis: 1/3* **Treatment tolerability (30)** Most of the patients tolerated the treatment, as only eight single treatments resulted in light overdosage with temporary redness and soreness.	Attrition: none * The one who experienced improvement had only a slight degree of disease activity when entering the study, and the other two did not improve. **Author's conclusion**: UVB-TL01 seems to be helpful in the majority of patients with chronic inflammatory diseases of the hands. Psoriasis patients seem to respond somewhat better than the eczema patients, but patients with pustulosis achieved little improvement. More extensive studies with regard to proper dosing and length of treatment period ought to be carried out.
Campolmi, L. *et al.* 308 nm monochromatic excimer light for the treatment of palmoplantar psoriasis.	n=11 (palmoplantar psoriasis (7) & **palmoplantar pustulosis (4))** 3 F: 8 M Age range: 21-64 years	NB-UVB MEL for 10 weeks, maximum irradiating area 512 cm^2. First session 15 seconds, increasing 5	**Disease improvement: PASI 75** 6 weeks: 11	Follow-up (16 weeks) No relapse **Author's conclusion**: Compared to excimer laser, MEL offers several advantages especially in the

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Int J Immunopathol Pharmacol 2002, **13**: 11-13. Prospective study, Italy	Patients were required to discontinue both topical treatments and photochemotherapy for 4 weeks and all systemic treatments for at least 6 months before enrollment.	seconds up to 90 seconds. Three times a week for 4 weeks, then twice a week for 2 weeks, then maintenance dose for 4 weeks	Between 75-100%	treatment of medium-large psoriatic areas such as palms and soles.

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Appendix I: Lichen Planus

I.1: Summary of included studies

I.1.1: Systematic reviews

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Atzmony, *Am J Clin Dermatol* 2016; **17**:11-22	Yes	Yes	Yes (unto May 2014), PubMed, Cochrane Central Register of Controlled Trials (CENTRAL), ClinicalTrials.gov registry. (limited to English only)	Yes	Yes	RCTs, quasi-randomized and non-randomized case-control studies and cohort studies with more than one treatment arm

Comments: Systemic review to evaluate the efficacy of available treatment modalities for cutaneous lichen planus (CLP). Primary outcomes were complete response and time to complete response. Secondary outcomes were partial response, relapse, time to relapse, reduction of itch, the adverse event rate, and withdrawal due to adverse events. Some of these outcomes matched some of our outcomes. Most trials had a small sample size.

In the rare studies in which variants other than generalized or classic lichen planus were included, they could not be analyzed separately. Body-of-evidence quality ranged from very low to moderate and was ranked moderate for NB-UVB.

Summary: Sixteen studies, including 11 RCTs were included, but only one RCT involved NB-UVB.

In this RCT 52.17 % of patients (12/23) treated with NB-UVB achieved a complete response, compared with 13.04 % of patients (3/12) treated with prednisolone 0.3 mg/kg/day for 6 weeks (RR 4 [95 % CI 1.3–12.33]).[121]

A retrospective cohort study—compared NB-UVB with PUVA.[122] The complete response rate was higher for PUVA, but the difference did not reach statistical significance (4/13 versus 10/15, RR 0.46 [95 % CI 0.19–1.12]). There were no between-group differences in the partial response rate (6/13 versus 5/15, RR 1.38 [95 % CI 0.55–3.49]) and the overall response rate (77 versus 100 %). Relapse rates for the two treatments were comparable (3/10 versus 7/15, RR 0.64 [95 % CI

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0.55–3.49]), as were the times to relapse (rates of sustained response at 1 month follow-up: 72 % for PUVA versus 54 % for NB-UVB, P = 0.86) and the rates of adverse events (RR 0.23 [95 % CI 0.01–4.37]).

Conclusions: Several treatment modalities were found to be effective in RCTs, including acitretin, sulfasalazine, narrow-band ultraviolet B radiation, oral glucocorticoids, and griseofulvin. The results are mainly applicable to classic or generalized cutaneous lichen planus. Further well-designed studies are warranted to investigate the efficacy of topical glucocorticoids—the current first-line therapy—as well as other treatment modalities, and the treatment of different variants of CLP.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Fazel, *Dermatolog Treat* 2015; **26**:280-3.	Yes	Yes	Yes, Pubmed (1950–1 November 2012), EMBASE (1980–1 September 2012), Cochrane Database of Systematic Reviews (Issue 8, August 2012), Cochrane Central Register of Controlled Trials (Clinical Trials, Issue 8, August 2012), Database of Abstracts of Reviews of Effects (Issue 3, July 2012), and Health Technology Assessment Database (Technology Assessments, Issue 3, July 2012).	Yes	Yes	SR, RCTs

Comments: Systemic review examining the efficacy of treatments for cutaneous lichen planus (CLP), including NB-UVB. Clinical improvement of CLP lesions after 4–8 weeks of treatment was the primary outcome. Secondary outcomes included complete resolution of CLP after 4–8 weeks of therapy and adverse events. Other endpoints were considered, if these outcomes were not reported. Some of these outcomes matched some of our outcomes.

Summary: Two relevant SRs and nine relevant RCTs were included, but only one RCT involved NB-UVB.

NB-UVB treatment (70% MED at the maximum dose of 9 J/cm^2) 3 times a week was compared to oral prednisolone (0.3 mg/kg) for the treatment of patients with generalized LP in a 6-week trial.[121] NB-UVB and oral prednisolone improved the CLP lesions. However, NB-UVB had a better complete clinical response rate than

systemic prednisolone (52.1% versus 13%, respectively). Patient satisfaction was higher with NB-UVB as well. No serious adverse events were reported for NB-UVB phototherapy.

In addition a retrospective non-randomized controlled study, patients with generalized LP were treated with either NB-UVB or PUVA.[122] Although PUVA had a significantly better initial response than NB-UVB (100% versus 77%, $p = 0.0426$), recurrence rates upon long-term follow-up were not significantly different in the two groups (47% versus 30%, respectively, $p = 0.8593$). No serious adverse events were reported for NB-UVB.

Conclusion: NB-UVB is more efficacious than oral prednisolone regarding complete resolution of lesions,[121] and comparable to PUVA in its long-term efficacy.[122] In the long term, NB-UVB has lower carcinogenic effects than PUVA. Thus, NB-UVB may be considered a safer option in the setting of generalized LP.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Yes	Yes	Yes (January 1966-June 2004 PubMed)	Yes (GRADE)	Yes	RCTs, open prospective studies and retrospective observations

Comments: Systematic review on the therapeutic use of NB-UVB for skin disorders other than psoriasis. Open prospective studies with <5 patients and retrospective observations on less than 15 patients (per diagnosis) were excluded. Reports on non-conventional NB-UVB such as NB-UVB microphototherapy or similar UV sources such as 308 nm UVB excimer laser therapy were not included. The quality of the evidence was low.

Summary: Two open prospective studies were identified (n=15).[119,120] One treated 10 patients with recalcitrant lichen planus with NB-UVB 3-4 times a week (mean cumulative dose 17.7 J/cm^2).[120] Complete response after 30 treatments occurred in 5 patients with 1 year duration of remission. Partial response after 30 treatments occurred in 4 patients without any recurrences for 6 months. The other successfully treated 5 patients with extensive lichen planus with NB-UVB.[119] Complete flattening of the lesions was achieved in a mean of 40 treatments (cumulative dose 82.7 J/cm^2). One patient was lost to follow-up, however in the remaining 4 remission was maintained for at least 5 months.

Conclusion: NB-UVB seems to be effective in patients with lichen planus. But current data allow no definitive conclusions as to whether NB-UVB should be preferred to other photo(chemo)therapeutic options.

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I.1.2: Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Pavlotsky F, *et al.* Ultraviolet-B treatment for cutaneous lichen planus: our experience with 50 patients. *Photodermatol Photoimmunol Photomed* 2008; **24**:83-6. Retrospective, single centre (1997-2006), Israel	n=50 generalized cutaneous lichen planus 32 F: 18 m Mean age (range): 44 years (12-77) Skin type: I-II (15%), III (39%: IV-V (46%)	Combination NB-UVB plus topical steroids (9)* Three times a week on non-consecutive days, initial dose and incrementing doses 0.05-0.1 J/cm^2 according to skin type. No details of steroid regimen given. NB-UVB monotherapy (34)† Same regimen Those achieving CR were suggested to have maintenance treatments at the last remission-inducing dose for an additional 3-6 weeks, while gradually decreasing the frequency of treatments.	**Disease improvement: complete response (complete disappearance of lesions and pruritus)** Combination: 55.6% NB-UVB monotherapy: 73.2% **Treatment tolerability** Well tolerated	*14 patients were treated in combination with topical steroids or acitretin or intensive Goeckerman-like protocol. †The other 7 were treated with BB-UVB. Mean time to complete response: 10.9 weeks. **Sustained clearance** Of the 35 CR patients, 27 were available for long-term f/up. Median f/up 34.7 months 23/27 still in remission.

I.2: Narrative findings

I.2.1: Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Fernandez-Guarino M, *et al.* Generalized lichen planus treated with narrowband UV-B phototherapy: Results from 10 patients and a review of the literature. *Actas Dermosifiliogr* 2019; **110**:490-3. Prospective (May 2011-April 2017), Germany. F/up: 18-48 months	n=10 generalized lichen planus 9 F: 1 M Mean age (range): 48.9 years (30-66) Inclusion criteria: Adults with GLP diagnosed by biopsy and involvement of >20% BSA who had previously failed to respond to an appropriate regimen of oral corticosteroids (0.5-1 mg/kg for at least 3 weeks)	NB-UVB 3 times a week, initial dose determined following a phototype protocol Mean of 17.7 sessions (range, 9-44) and received a mean dose of 20.96 J/cm^2 (range, 4.44---77.00 J/cm^2) Only concomitant treatments were topical corticosteroids, oral antihistamines, and emollients.	**Disease improvement:** Complete response (>90%): 8 Partial response (70%-90%): 2* **Sustained benefit** 8 (7 with CR, 1 PR) 2 recurred after 3 (CR) & 6 (PR) months	* One discontinued treatment, but nonetheless continued to improve without recurrences. No major adverse effects were observed. Most patients experienced occasional itching or erythema that did not require discontinuation of treatment. **Author's conclusion:** NB-UVB phototherapy is a widely used alternative to systemic treatments in GLP, but there are very few reports of its results in the literature.
Solak B, *et al.* Narrow band ultraviolet B for the treatment of generalized lichen planus. *Cutan Ocul Toxicol* 2016; **35**:190-3. Retrospective study, (January 2011-	n=24 generalized lichen planus 14 F: 10 M Mean age (range): 46.9 years (18-75) Skin type: I (2), II (11), III (9), IV (2) Inclusion criteria: ≥18 years who had regular follow-up visits and	NB-UVB Initial dose determined by skin type, dosage increments 20% at every session unless erythema, edema and/or blister occurred. Three times a week for 6 weeks, then twice a week for 2 weeks, then once a week for 4 weeks If attained response was not	**Disease improvement:** Complete response (>90%): 11 Partial response (51%-89%): 5 Unresponsive (≤50%): 8 **Serious adverse events** None	**Sustained clearance** Recurrence occurred in 6/16 within 3-12 months after the end of treatment **Author's conclusion:** Two-thirds of patients with generalized lichen planus favourably responded to NB-UVB treatment without any remarkable adverse events. This

December 2014), Turkey F/up: 3-12 months	medical records sufficiently detailed for at least 4 months after treatment	deemed to be sufficient, treatment continued three times for an additional 2-5 weeks before tapering of sessions	**Minor adverse events** Hyperpigmentation (5) All with III or IV skin types	significant response rate coupled with safety should prompt further clarification of the place of NB-UVB in generalized lichen planus**.**
Habib F, *et al.* [Narrow band UVB phototherapy in the treatment of widespread lichen planus]. *Ann Dermatol Venereol* 2005; **132**:17-20. Retrospective, Phototherapy Unit (May-November 2001) In French	n=20 disseminated lichen planus involving at least 20% of the skin surface 12 F: 8 M Mean age (SD): 48.6 (3.6) years Skin type: II (5), III (13), IV (2)	NB-UVB Three times a week	**Disease improvement** Complete response (>90%): 11 Partial response (51%-89%): 4 Poor response: (20%-50%):4 Unresponsive (<20%): 1 **Sustained clearance: ≥6 months** 2/11 had relapsed by 42 months	Median time to response (range): 3 months (2-6) **Author's conclusion:** These results underline the efficacy of NB-UVB in the treatment of disseminated cutaneous lichen planus. They confirm those of earlier studies and are superimposable with those of oral UVA phototherapy.
Samson Yashar S, L *et al.* Narrow-band ultraviolet B treatment for vitiligo, pruritus, and inflammatory dermatoses. *Photodermatol Photoimmunol Photomed* 2003; **19**:164-8. Retrospective study, (1998-2201), USA	n=117* (including 4 with lichen planus)	NB-UVB TL-01 The average number of treatments was 33 for patients with inflammatory cutaneous disorders.	**Disease improvement** Significant (66%-100%) or Moderate (26%-65%): 3	*vitiligo (77), atopic dermatitis (7), polymorphous light eruption (7), generalised pruritis (6), lichen simplex chronicus/prurigo (3), granuloma annulare (generalised) (2), pityriasis lichenoides chronica (2), pityriasis rubra pilaris (2), eosinophilic folliculitis (2), nummalar dermatitis (2), lymphomatoid papulosis (1), alopecia mucinosa (1), pityriasis lichenoides et varioliformis acuta (1)

				Author's conclusion: NB-UVB may be considered as a viable therapeutic option in the treatment of pruritus. Long-term adverse effects and cost–benefit analysis of NB-UVB therapy compared to other treatment modalities remain to be determined.

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Appendix J: Mycosis fungoides/CTCL

J.1: Summary of included studies

J.1.1: Systematic reviews

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Phan, *JAMA Dermatol* 2019.	Yes	Yes	Yes (up to 30th March 2018) Cochrane Database of Systematic Reviews, CENTRAL, MEDLINE, PubMed, Cochrane Library, American College of Physicians ACP Journal Club, Database of Abstracts of Effectiveness	Yes	Yes	Comparative studies

Comments: Systematic review and meta-analysis to compare the efficacy and adverse effects of NB-UVB vs. PUVA in early-stage mycosis fungoides (MF). Studies with patients with stage IIB or higher MF, paediatric patients and with less than 10 patients on each arm were excluded. Main outcomes were complete response rate, partial response rate, disease recurrence, and adverse effects, including erythema, nausea, pruritus, phototoxic effects, dyspepsia, and pain. Some of these outcomes matched some of our outcomes.

Summary: Seven studies, one prospective and six retrospective observational studies were included with a total of 778 patients; 251 were treated with NB-UVB and 527 with PUVA.[376-382] Most of the included studies were of poor to moderate quality.

Complete response was found in 156 of 251 (62.2%) who received NB-UVB vs. 389 of 527 (73.8%) patients who received PUVA, which was statistically significant (OR, 1.68; 95% CI, 1.02-2.76; p = 0.04). Partial response was similar, 64 of 233 (27.5%) who received NB-UVB vs 90 of 501 (18.0%) who received PUVA (OR, 0.58; 95% CI, 0.33-1.04; p = 0.07). Subgroup analysis including six of the studies was performed.[376,377,380-382] Stage IA MF patients showed a significantly lower complete response in patients treated with NB-UVB (77 of 124 [62.1%] vs.179 of 218 [82.1%]; OR, 2.70 ; 95% CI, 1.25-5.87; p = 0.01) and in those with stage IB

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MF (52 of 90 [57.8%] vs. 165 of 244 [67.6%]; OR, 1.93; 95% CI, 1.13-3.31; *p* = 0.02).

Partial response to phototherapy was found to be similar between NB-UVB and PUVA for total number of patients (64 of 223 [27.5%] vs. 90 of 501 [18.0%]; OR, 0.58; 95% CI, 0.33-1.04; *p* = 0.07).[376-381] No significant difference was found in patients with stage IA disease (14 of 48 [29.2%] vs. 18 of 139 [12.9%]; OR, 0.45; 95% CI, 0.05-3.72; *p* = 0.46) or in those with stage IB disease (9 of 62 [14.5%] vs. 40 of 145 [27.6%]; OR, 1.68; 95% CI, 0.55-5.20; *p* = 0.36).[376,380,381]

No significant difference was found between NB-UVB and PUVA in terms of adverse effects of erythema (17 of 251 [6.7%] vs. 38 of 527 [7.2%] ; *p* = 0.54), nausea (3 of 251 [1.2%] vs 10 of 527 [1.9%]; *p* = 0.72), pruritus (4 of 251 [1.7%] vs. 2 of 527 [0.4%]; *p* = 0.26), phototoxic effects (2 of 251 [0.9%] vs. 7 of 527 [1.4%]; *p* = 0.72), dyspepsia (0 of 251 [0%] vs. 6 of 527 [1.2%]; *p* = 0.59), or pain (2 of 251 [0.9%] vs. 0 of 527 [0%]; *p* = 0.50).

Conclusion: Both NB-UVB and PUVA are effective at producing a partial or complete response when used for early-stage MF. However, NB-UVB was associated with a significantly lower rate of complete response compared with PUVA. This was also seen in the subgroups with stages IA and IB MF. Proportions of patients with partial responses were similar, whereas failed responses were significantly higher for patients treated with NB-UVB regardless of any stage, stage IA only, or stage IB only. These findings have implications for clinicians involved in the management of early-stage MF.

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Yes	Yes	Yes (January 1966-June 2004 PubMed)	Yes (GRADE)	Yes	RCTs, open prospective studies and retrospective observations

Comments: Systematic review on the therapeutic use of NB-UVB for skin disorders other than psoriasis. Open prospective studies with <5 patients and retrospective observations on less than 15 patients (per diagnosis) were excluded. Reports on non-conventional NB-UVB such as NB-UVB microphototherapy or similar UV sources such as 308 nm UVB excimer laser therapy were not included. The quality of the evidence was high to moderate to low.

Summary: Four studies were identified (n=108), including 2 open prospective studies[383,384] and 2 retrospective observations.[378,385] In one prospective study,[383] 14 patients with small plaque parapsoriasis and 6 patients with early-stage MF were treated with N|B-UVB 3-4 times a week for 5 to 10 weeks. In 19 of the patients the lesions completely cleared after a mean number of 20 sessions (mean cumulative dose 16.3 J/cm^2) Cutaneous relapses occurred in all patients within a mean time of 6 months. In the second prospective study, [384] 8 patients with early-stage MF (4 with stage 1a, 4 with 1b) received NB-UVB 3 times weekly. Complete clearance was achieved in 6 patients after 26 sessions with a mean time of 9 weeks. Mean duration was 20 months.

One retrospective study compared NB-UVB (21) with oval PUVA (35) in early-stage MF.[378] Complete remission was achieved in 17 (81%) patients (NB-UVB) and

25 (71%) patients (oval PUVA) and partial remission in 4 patients (NB-UVB) and 10 patients (oral PUVA). Mean relapse-free interval for NB-UVB treated patients was 24.5 months while for oral -PUVA it was 22.8 months. The other retrospective study included 24 patients with early-stage MF (12 with stage 1a, 12 with stage 1b) who received NB-UVB 3 times weekly.[385] Complete response was achieved in 13 patients, 7 had partial response and in 4 there was no response. Four patients with complete response relapsed within a mean time of 12.5 weeks.

Conclusion: NB-UVB seems to be effective in patients with early stages of cutaneous T-cell lymphoma. But current data allow no definitive conclusions as to whether NB-UVB should be preferred to other photo(chemo)therapeutic options.

J.1.2: Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Wongpraparut C, *et al.* Phototherapy for hypopigmented mycosis fungoides in Asians. *Photodermatol Photoimmunol Photomed* 2012; **28**:181-6. Retrospective study, (January 2000-December 2009), Dermatology Department, Thailand	n=9 hypopigmented mycosis fungoides 6 F: 3 M Mean age (range): 42.2 years (22-61) Skin type: III (1), IV (6), V (2) Stage: IA (8), IB (1)	NB-UVB (6) At least twice a week. Initial dose 50% of MED, dose increased every other treatment by, 40%, 30%, 25%, 20%, 15%, 10%, 5%, after the 16th treatment the dose was maintained. If erythema developed during treatment, depending on the severity, planned dose increments were abandoned or treatments missed, until the erythema resolved. PUVA (3) Same regimen. 0.6 mg/kg 8-MOP given 2 hours before therapy.	**Disease improvement: complete disappearance of clinical lesions for a least 1 month (CR)** NB-UVB: 3 PUVA: 3 **Sustained clearance/ benefit: ≥6 months** NB-UVB: 2* PUVA: 3†	Partial response NB-UVB (3) *Relapse after 2 months (1), 7 months (2) †During maintenance therapy (PUVA 1/month), new hypopigmented macules developed, the frequency of PUVA was increased to 2/week until the lesion was clear (28 treatments), relapsed 11 months (1), relapsed 72 months
Khaled A, *et al.* PUVA therapy and narrowband UVB therapy in Tunisian patients with mycosis fungoides. *Therapie* 2009; **64**:389-94.	n=7 histologically-proven early stage mycosis fungoides 2 F: 5 M Mean age (range): 56.8 years (30-68)	NB-UVB (4) 3 times a week. Initial dose 0.3-0.4 J/cm^2, increased by 20% on subsequent sessions until maximum dose 2.5 J/cm^2. If erythema occurred the previous dose was reduced by 10%, or maintained until complete regression of erythema	**Disease improvement: 90% clearance of lesions (CR)** NB-UVB: 4 (IA & IB) PUVA: 2 (IB)	Both treated with PUVA relapsed (40 sessions and 7 months*). Treated with PUVA maintenance treatment (2 sessions/ 2 weeks) and NB-UVB* leading to CR. Patient with IIA did not respond

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Retrospective study (2006-8), Tunisia Mean f/up: 13.2 months	Skin type: III (1), IV (1), V (1) Stage: IA (1), IB (5), IIA (1)	PUVA (3) Same regimen. 0.6 mg/kg 8-MOP given 2 hours before therapy. Initial dose 1-2 J/cm^2, increased by 20% on subsequent sessions until maximum dose 6 J/cm^2. Treatment was maintained until complete response of lesions (≥90% clearance).	**Sustained clearance/benefit: ≥6 months** NB-UVB: 4 PUVA: 1*	and rapidly evolved into IIB. Mean number of sessions for NB-UVB: 40 (range 30-65)

J.2: Narrative findings

J.2.1: Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Boulos S, *et al.* Clinical presentation, immunopathology, and treatment of juvenile-onset mycosis fungoides: a case series of 34 patients. *J Am Acad Dermatol* 2014; **71**:1117-26. Retrospective case series, USA Median f/up: 2 years (range 2 months-14.8 years)	n=34 juvenile-onset MF 16 F: 18 M Mean age (range): 9 years (3-19) Stage: IA (14), IB (19), IIB (1)	Paediatric patients were treated with emollients, low- to mid-potency topical steroids, and antibacterial soap. For more extensive T2 disease (10% BSA), phototherapy was added (21: including 14 with NB-UVB).	**Disease improvement: clearance** Complete (total disappearance of clinical lesions for at least 1 month): 3 Partial (disappearance of 50% or more): 9 Stable disease (disappearance of less than 50%): 2	Ten patients (29%) received a correct initial diagnosis of MF, but in 6 patients (67%) the diagnosis was delayed for at least 1 year after the onset of symptoms (range 2 months-12 years). **Author's conclusion:** NB-UVB is an effective treatment option for juveniles, especially for those with the hypopigmented variant.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
STRATA			**Sustained clearance/benefit: ≥6 months median 2 years** All 14	
Heng YK, *et al.* Pediatric mycosis fungoides in Singapore: a series of 46 children. *Pediatr Dermatol* 2014; **31**:477-82. Retrospective, single centre (2000-2008), Singapore **STRATA**	n=46 hypopigmented MF stage IA/B in patients younger than 16 years 14 F: 32 M Mean age (SD): 103 (3.2) years Race; Chinese (33), Malay (7), Indian (20, Others (4) Lesion morphology*: Patches & plaques only (31), Patches, plaques with red, scaly papules & plaques (11), red, scaly papules & plaques (3), brown patch (1) Stage: IA (180, IB (270, IIA (1)	NB-UVB (32)†	**Disease improvement: clearance** Complete clearance: 15 after a mean duration of 8.9 (5.3) months with a mean of 52.1 (24.3) exposures, but 7 patients relapsed after a mean duration of 14.9 (14.8) months Partial clearance: 17 after a mean duration of 9.0 (9.2) months with a mean of 47.1 (47.7) exposures	*Clinical variants after biopsy: Hypopigmented MF (42), PLC-like MF (1), PPD-like MF (1), Classical MF (1), Solitary MF (1) †topical seteroids only (8), PUVA (3), UVA1 (1), treated elsewhere (2) **Author's conclusion:** All of the patients who received NB-UVB treatment had at least partial clearance and almost 50% achieved complete clearance, but long-term safety is less certain because paediatric MF is characterized by frequent relapses, which may result in high cumulative doses of UV light. Therefore, phototherapy may be best reserved for patients with extensive disease, and its use should be reduced when the condition is controlled.
Koh MJ, *et al.* Narrow-band ultraviolet B phototherapy for mycosis fungoides in children. *Clin Exp Dermatol* 2014; **39**:474-8.	n=9 early stage MF 1 F: 8 m Mean age (range): 8.8 years (5-12)	NB-UVB Initial dose based on skin type, ranging from 300 to 400 mJ/cm^2. Increased by 10–20% of the previous dose if	**Disease improvement:** Complete response: 8 after a mean of 9 months	Mean time to recurrence: 13.8 months. 4/5 had a good response to repeat course of NB-UVB, 5th treated with topical therapies

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Retrospective, single centre (2004-2008), Singapore F/up: 1-3 years **STRATA**	Race: Chinese 96), Indian (2), Malay (1) Stage: 1A (2), 1B (6), 2A (1)	the previous treatment had caused no or only slight erythema. 2–3 times per week until improvement of symptoms was seen, after which treatment frequency could be reduced until remission was obtained	**Sustained benefit: f/up** 3 **Treatment tolerability** Well tolerated, only mild side-effects of itch and erythema	**Author's conclusion:** Phototherapy using NB-UVB in the treatment of MF is efficacious and safe. We recommend it as first-line treatment in the management of early-stage MF in children.
Castano E, *et al.* Hypopigmented mycosis fungoides in childhood and adolescence: a long-term retrospective study. *J Cutan Pathol* 2013; **40**:924-34. Retrospective chart review (1992-2010), USA Mean f/up (range): 3.8 years (<1-12) **STRATA**	n=69 paediatric MF including 50 with hypopigmented MF 32 F: 37 M Mean age: 13.6 years Race: African American (39), Asian (6), Hispanic (17), White (7) Multiple lesions: 94% Inclusion criteria: <21 years with clinicopathological diagnosis of MF	Combination NB-UVB & topical corticosteroids (22) Combination PUVA & topical corticosteroids (1) Majority of the rest received topical corticosteroids monotherapy (6) or had either refused or were scheduled for light therapy (5)	**Disease improvement:** 16 improved with phototherapy by at least 50%, but the areas of hypopigmentation did not completely repigment **Sustained clearance/benefit: ≥6 months** 5	Attrition: 15: refused treatment and/or were lost to f/up * topical corticosteroids (20%), either refused or were scheduled for light therapy (5) Difficult to extract as percentages don't add up.
Yazganoglu KD, *et al.* Childhood mycosis fungoides: a report of 20 cases from Turkey. *J Eur Acad Dermatol Venereol* 2013; **27**:295-300. Retrospective (1997-2011), Turkey Median f/up (range): 3.75	n=20 MF 8 F: 12 M Mean age (SD): 9.2 (4.52) years Classification: $T_{1a}N_0M_0$ (9), $T_{1b}N_0M_0$ (3), $T_{2a}N_0M_0$ (3), $T_{2b}N_0M_0$ (4), $T_{2b}N_1M_0$ (1) Lesions: hypopigmented (45%), purpuric (30%)	NB-UVB (2) Combination NB-UVB & topical corticosteroids (3) Combination NB-UVB & PUVA (1) Majority of the remainder were treated with topical	**Disease improvement:** NB-UVB Resolution: 1 Still under therapy: 1 Combination NB-UVB & topical corticosteroids Resolution: 2 Still under therapy: 1	Attrition: parents refused phototherapy (1) **Author's conclusion:** Overrepresentation of hypopigmented and purpuric lesions was remarkable. After an initial clearance, 69.2% of the patients were observed to have recurrences. Progression to an advanced stage was not seen.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
years (1-13) (16 patients) **STRATA**		corticosteroids (11) or PUVA (2)	Combination NB-UVB & PUVA Resolution: 1 **Sustained clearance: follow-up:** None (3 recurred, 2 still under therapy, 1 lost to follow-up)	However, recurrences after discontinuation of therapy were common.
Laws PM, *et al.* Childhood mycosis fungoides: experience of 28 patients and response to phototherapy. *Pediatr Dermatol* 2014; **31**:459-64. Retrospective, single centre (January 1990-April 2012), USA Median f/up (range): 43 months (6-274) **STRATA**	n=28 stage I MF 15 F: 13 M Mean age (SD): 11.6 (3.9) years Skin type: II (3), III (5), IV (7), V (11), unknown (2) Phenotype: Hypopigmented (22); Papulosquamous (6) Stage: IA (10), IB (17), unknown (1) Concomitant medication: 25; corticosteroids (23), retinoids (5), imiquimod (3)	NB-UVB (18) Median dose of NB-UVB (range) 128.5 (62.1-409.6) mJ/cm^2, number of treatments 56 (35-146) PUVA (8) Median dose of PUVA (range) 68.3 (14.5-258) mJ/cm^2, number of treatments 50.5 (21-80).	**Disease improvement:** NB-UVB Complete: 5 Partial: 7 Stable disease: 3 [3 patients were still undergoing treatment] PUVA: Complete: 5 Partial: 3 **Sustained clearance** NB-UVB: 5/12 PUVA: 4/8 After a median time of 4 months (range 4-29 months)	Attrition: 14 were lost to f/up **Author's conclusion:** Phototherapy offers an effective option for treatment of childhood MF, although the period of remission may be greater in patients treated with PUVA.
Duarte IAG, *et al.* An evaluation of the treatment of parapsoriasis with phototherapy. *An Bras Dermatol* 2013; **88**:306-8.	n=62 parapsoriasis 28 F: 34 M Mean age (range): 33 years (23-92) Type of lesion: large	NB-UVB (17) PUVA (45) In both types of phototherapy, the average	**Disease improvement:** NB-UVB Cure: 14 Improvement: 3	Attrition: 4 lost to f/up **Author's conclusion**: Phototherapy is an excellent treatment for parapsoriasis, with high cure rates, regardless of the

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Retrospective, cross-sectional, multi-centre study, (2006-2009), Brazil F/up: 1-8 years	plaques (45), small plaques (17)	treatment consisted of 30 sessions over two and a half months. The total number of sessions ranged between 18 and 90. No difference was observed in relation to the time and number of sessions between the two types of phototherapy.	PUVA Cure: 41 Improvement: 4 No significant difference between the two treatments X^2=0.862, *P*=0.7641 **Sustained clearance: assessed 1-8 after treatment** 46/62*	type of phototherapy employed. Of the 62 patients under study, parapsoriasis showed no general tendency to progress to T-cell cutaneous lymphoma. *10 had shown improvement, 2 progressed to T-cell cutaneous lymphoma
Pavlotsky F, *et al.* Potential of narrow-band ultraviolet B to induce sustained durable complete remission off-therapy in patients with stage I mycosis fungoides. *J Am Acad Dermatol* 2019; **80**:1550-5. Retrospective, Israel F/up: March 2017	n=117 stage I MF 31 F: 62 M* Age: <50 years (45), ≥50 years (47) Skin type: I-II (34), III-V (59) Stage: 1A (42), 1B (51)	NB-UVB Single course of NB-UVB three times a week on non-consecutive days before 2011, then stopped all therapy Initial dose according to skin type. Increased each treatment according to skin type (0.05 J/cm^2 for skin types 1-2 and 0.1 J/cm^2 for skin types 3-5) for a maximum dose of 3 J/cm^2. Maintenance was given twice a week for about 4 weeks, then once a week for about the 4 weeks, and finally every 2 weeks, except in rare cases	**Complete response** Complete response: 93 **Sustained benefit: >5 years** 56	*Baseline characteristics only given for those with CR **DFS** 1A: 131 months 1B: 87.6 months **Author's conclusion:** After a single course of NB-UVB, over a half of stage I MF patients achieved >5 years of DFS and were potentially cured. Thus, NB-UVB can be considered a disease-modifying therapy.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
		of extremely photosensitive skin that could only tolerate a maximum intertreatment interval of 7-10 days. Maintenance was discontinued after 3-6 months.		
Rodney IJ, *et al.* Hypopigmented mycosis fungoides: a retrospective clinicohistopathologic study. *J Eur Acad Dermatol Venereol* 2017; **31**:808-14. Retrospective (1992-2009), single centre, USA Mean f/up (excluding those lost to f/up) (range): 5.9 years (8 months-14 years)	n=20 hypopigmented MF Adults: 9 F: 6 M Children: 1 F: 4 M Mean age (range): 32.2 years (4-57)* Race: African American (15), African (3), Afro-Caribbean (1), Hispanic (1) Stage: IA (8), IB (12)	NB-UVB (8) PUVA then NB-UVB when recurrence occurred (2) Other 10 (PUVA monotherapy (3), topical nitrogen mustard (1), lost to f/up as returned to referring dermatologist (6))	**Disease improvement: clearance** NB-UVB Complete remission: 2 Persistent disease: 6	*****adult men, 33.5 years; adult women, 45.3 years; boys, 6 years and girl, 12 years. **Author's conclusion:** We observed that any repigmentation of lesions suggests an effective treatment regimen, complete repigmentation correlates with clinical and histopathologic resolution, and new hypopigmented lesions during remission suggest relapse.
Abdallat SA, *et al.* Efficacy and side effects of narrowband-UVB in early stage cutaneous T-cell lymphoma in jordanian patients. *ISRN Dermatol* 2014; **2014.** Prospective, (October 2010-July 2012), Jordan F/up; 6 months	n=27 early-stage cutaneous T-cell lymphoma 11 F: 16 M Mean age (range): 46.3 years (21-63) Skin type: III (16), IV (7), V (4)	NB-UVB Initial dose 70% of MED, with 20% increase per session, three times weekly, until clearance or a maximum of 42 sessions.	**Disease improvement: clearance** Complete (>95%): 21 Partial (50%-95%): 6 **Sustained clearance/benefit: ≥6 months** 9/21	**Author's conclusion:** NB-UVB phototherapy is safe and effective for the treatment of early stage cutaneous T-cell lymphoma in darker-skinned patients.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
			Minor adverse events: mild hyperpigmentation 4	
De Vrieze NHN, *et al.* [The role of the 308-nm excimer laser for the treatment of mycosis fungoides]. *Ned Tijdschr Dermatol Venereol* 2014; **24**:353-5. F/up: 19-54 months In Dutch, done from abstract	n=6 early stage MF (8 lesions)	Monochromatic excimer light (MEL) at 308nm with a cumulative dose of between 350 mJ/cm^2 and 1800 mJ/cm^2.	**Disease improvement: clearance** Lesions Complete remission: 4 Partial remission: 1 No change: 2	**Attrition:** 1 (moved abroad) **Author's conclusion:** MEL 308nm can be considered as a useful treatment for MF.
Hassab-El-Naby HM, *et al*. Hypopigmented mycosis fungoides in Egyptian patients. *J Cutan Pathol* 2013; **40**:397-404. January 2004-December 2011, Egypt F/up: 5 years*	n=27 hypopigmented MF 9 F: 18 M Mean age (SD): 35.39 (13.13) years Skin type: 11 (1), III (9), IV (17) Lesion: single (3), multiple (24) Boarder definition: well (8), ill (19) Staging: 1A (21), 1B (6)	NB-UVB with topical steroids and/or tacrolimus Mean treatment period 14 months Those with poor response to NB-UVB were shifted to PUVA One patient showed no improvement with PUVA and was referred to radiotherapy	**Disease improvement:** NB-UVB: 10/15 PUVA: 4/5 13 clinical and histopathologic cure	*5-year f/up data available for 15 Relapse was recorded in 3 patients after 8, 9 and 14 months but they were improved after another course of phototherapy (PUVA). **Author's conclusion:** Phototherapy was effective in 86.7% of patients with success rate 66.7% of NB-UVB and 80% of PUVA.
Kanokrungsee S, *et al.* Efficacy of narrowband ultraviolet B twice weekly for hypopigmented mycosis fungoides in Asians. *Clin Exp*	n=11 hypopigmented MF (patches) 4F: 7 M Median age (range): 28	NB-UVB Initial dose was 40% of MED. The dose was increased by 5– 20% of MED each time, depending on the erythema	**Disease improvement:** Complete response: 7 Partial response: 4	Maintenance NB-UVB therapy two times per month for 5–8 months (7) **Author's conclusion:** A twice-

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Dermatol 2012; **37**:149-52. Retrospective (January 2001-December 2010), Thailand Median f/up (range): 24.1 months (3.9-120.8)	years (6-75) Skin type: IV (9), V (2) Concomitant treatment: medium- to high-potency topical corticosteroids (9)	responses to previous sessions. Phototherapy was postponed if there was obvious erythema, burning or pain. The treatment was resumed after side-effects subsided with a NB-UVB dose of 50% of the previous dose. The median number of treatment sessions was 38 (range 14–136), and the mean cumulative NB-UVB dose was 27 J⁄cm^2 (range 2.2– 151.8).	**Sustained clearance:** 4 [3 had clinical relapse, medium time to relapse 10 months] **Minor adverse events** Side-effects were minimal: mild erythema, burning and pruritus which subsided in a few days (5). Two patients required a temporary interruption of the treatment: marked axillary erythema (1) & herpes zoster infection (1) .	weekly regimen of NB-UVB is an effective treatment for hypopigmented MF with minimal side-effects. However, the relapse rate is high, and unfortunately, no clinical or histological features can predict the relapse of the disease.
Jang MS, *et al.* Narrowband ultraviolet B phototherapy of early stage mycosis fungoides in Korean patients. *Ann Dermatol* 2011; **23**:474-80. Prospective (June 2007-April 2010), Korea	n=14 early MF 2 F: 12 M Mean age (range): 32.5 years (10-64) Skin type: III (4), IV (8), V (2) Clinical presentation: Patches (12), papules (2) Stage: IA (3), IB (11) Exclusion criteria: a history of photosensitivity disease or who was being treated with	NB-UVB TL-01 lamps 3 times a week. Initial dose was 70% MED and was increased in 20% increments.	**Disease improvement:** Complete remission: 11 Partial remission: 3 **Sustained clearance:** 5 [6 relapsed after a mean f/up of 8.5 (4.09) months] **Minor adverse events** No serious adverse effects were observed except for hyperpigmentation (7/14)	Mean number of treatments in complete response was 31.0 (7.4) within a mean time of 15.4 (5.71 weeks (range 5-27 weeks). Stage IA: mean number of treatments was 23.3 (4.5), and the cumulative dose was 23.7 (7.0) J/cm^2 Stage IB: mean number of treatments was 31.4 (7.3), and the cumulative dose was 32.7 (11.2) J/cm^2 **Author's conclusion:** NB-UVB therapy is safe and effective for

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
	photosensitizing medication.			the treatment of early stage MF in Korean patients.
Dereure O, *et al.* Treatment of early stages of mycosis fungoides with narrowband ultraviolet B. A clinical, histological and molecular evaluation of results. *Dermatology* 2009; **218**:1-6. Prospective, France Mean f/up (range): 26 months (6-64 months	n=22 early stage MF 5 F: 17 M Mean age (range): 61.1 years (32-88) Stage: IA (16), IB (3), IIA (3)	NB-UVB Initial dosage ranged from 0.1 to 0.2 J/cm^2 according to the patient's phototype, and the dose was increased by 20% at each treatment according to tolerance, up to a theoretical final dosage of 1.5 J/cm^2. Patients received a cumulative dose ranging from 23 to 44.5 J/cm^2 (mean: 37.4 J/cm^2), and a maximal dosage ranging from 0.5 to 1.8 J/cm^2 (mean: 1.45 J/cm^2).	**Disease improvement** Complete remission: 18 [IA (15), IB (1), IIA (2)] Partial remission: 4 [IA (1), IB (2), IIA (1)] **Sustained clearance** 11/18 [7 relapsed after a mean f/up of 20.1 months]	Median relapse-free interval was 14.5 months. **Author's conclusion:** NB-UVB phototherapy is a well-tolerated treatment of early-stage MF, and its efficiency is maximal in very early stages (IA). Even though clinical results seem very similar to PUVA through indirect and tentative comparisons with historical series, relapses tend to occur earlier than with PUVA, especially when an incomplete histological or molecular response was achieved.
Ma L, *et al.* [Interferon-α combined with narrowband UVB phototherapy in the treatment of patients with cutaneous T-cell lymphomas]. *J Clin Dermatol* 2008; **37**:51-3. In Chinese, done from abstract	n=16 CTCL	Combination NB-UVB plus interferon alpha	**Disease improvement: remission** Complete remission: 37.5%	Overall response rate: 87.5% **Author's conclusion:** Interferon-α combined with narrowband UVB in the treatment of patients with cutaneous T-cell lymphomas (CTCL) is an effective and safe therapy.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Ohtsuka T. Narrow band UVB phototherapy for early stage mycosis fungoides. *Eur J Dermatol* 2008; **18**:464-6. Prospective, single centre, Japan	n=8 early stage MF 4 F: 4 M Mean age (SD): 61.8 (12.6) years Stage: IA (4), IB (4)	NB-UVB Initial dose 0.1 J/cm^2 once a week. Dose increased by 0.1 J/cm^2 until the maintenance dose was reached Mean cumulative dose (SD) 8.2 (3.4) J/cm^2 Maintenance dose 0.5 to 0.7 J was irradiated every 2-4 weeks	**Disease improvement** Complete*: 7 IA (4), IB (3) Partial: 1 IB (1) **Sustained benefit (≥6 months)** No recurrence during the maintenance therapy. Remission period 9 months.	*5 were confirmed histologically Pruritus was seen in 2 patients. **Author's conclusion:** NB-UVB was concluded as an effective and safe treatment for early-scale MF.
Xiao T, *et al.* Narrow-band ultraviolet B phototherapy for early stage mycosis fungoides. *Eur J Dermatol* 2008; **18**:660-2. Retrospective, single centre (August 2002-September 2006), China	n=8 early-stage MF 2 F: 6 M Mean age (range): 49 years (37-78) Skin type: III (7), IV (1) Stage: IA (2), IB (3), IIA (3)	NB-UVB Twice weekly. Initial dose was 0.2 J/cm^2. Dose increments were made according to the previous erythema response F/up: until September 2007	**Disease improvement: improvement** Complete: 6 IA (2), IB (2), IIA (2) Partial: 2 IB (1), IIA (1) **Sustained benefit (≥6 months)** Upon discontinuation of treatment 4 patients with complete response relapsed.* Mean time to relapse: 5 months. **Treatment tolerability** Well tolerated	*All four patients who relapsed did not accept maintenance therapy and responded to a second course of NB-UVB. Minor erythema was seen in 3 patients, which generally disappeared in 1-2 days. No other side effects were observed. **Author's conclusion:** The twice weekly regimen of NB-UVB phototherapy is effective and well-tolerated in the treatment of early stage MF.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Brazzelli V, *et al.* Narrow-band ultraviolet therapy in early-stage mycosis fungoides: study on 20 patients. *Photodermatol Photoimmunol Photomed* 2007; **23**:229-33. Prospective, Italy	n=20 early-stage MF 10 F: 10 M Mena age (SD): 54 (22) years Skin type: II (12), III (8) Stage: IA (10), IB (10)	NB-UVB Therapy was given three times a week on non-consecutive days. Initial dose was 180–200 mJ/ cm^2 with dose increments of 50 mJ/cm^2. Therapy continued until more than 95% clearance of the patient's skin lesions had occurred.	**Disease improvement: improvement** Complete (>95%): 18 Partial (50-95%): 2 **Treatment tolerability** Well tolerated	Complete clearance of skin lesions was observed after a mean number (SD) of 29 (14) treatments and an average cumulative dose of 25 (16.77) J/cm2, within a mean time of 4 months (range 1–8 months). **Sustained clearance:** Relapse occurred after a mean period of 8 months (range 3–17 months) **Author's conclusion:** This study provides evidence that NB-UVB might be an efficient option for stage IA and IB MF patients.
Coronel-Pérez IM, *et al.* [Narrow band UVB therapy in early stage mycosis fungoides. A study of 23 patients]. *Actas Dermosifiliogr* 2007; **98**:259-64. Retrospective F/up; 1 year In Spanish, done from abstract	n=23 early stage IB MF	NB-UVB	**Disease improvement: response** Complete response: 13 Partial response: 8 No response: 2 **Sustained response/benefit: 1 year** 7 [6 relapsed]	**Author's conclusion:** UVB1 therapy is a good alternative for treatment of early stage mycosis fungoides, although the disease-free period is short.
Aydogan K, *et al.* Narrowband UVB phototherapy for small plaque parapsoriasis. *J Eur Acad Dermatol Venereol*	n=45 small plaque parapsoriasis (SPP) 24 F: 21 M Mean age (range): 43.1	NB-UVB Therapy was given 3-4 times weekly. Initial dose was 70% of the MED. The doses were increased gradually with a	**Disease improvement: clearance** Complete (≥90% clearance): 33	**Author's conclusion:** NB-UVB therapy for patients with SPP is an effective, safe and practical alternative treatment modality. Further larger studies with longer

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
2006; **20**:573-7. Prospective, Turkey F/up: 6-24 months	years (20-58) Skin type: I (1), II (26), III (18)	standard increment of 20/10/0.	Partial (≥50-<90%): 12 **Sustained clearance/benefit: ≥6 months** Relapse in Complete: 4 Partial: 2 [Within a mean time of 7.5 months (range 2-12 months)] **Minor adverse events: post-inflammatory hyperpigmentation** 23/45	follow-up periods are necessary to determine the proper clinical response and long-term complications of NB-UVB therapy in this disease.
Pavlotsky F, *et al.* UVB in the management of early stage mycosis fungoides. *J Eur Acad Dermatol Venereol* 2006; **20**:565-72. Retrospective (1996-2002), Israel Mean f/up (range): 27 weeks (16-220)	n=68 early-stage MF 17 F: 51 M Mean age (range): 49.6 years (9-87) Skin type: I-II (34%) Staging: IA (32), IB (36)	NB-UVB 3 times a week on non-consecutive days. Initial dose 0.05-0.1 J/cm^2, increased by 0.05-0.2 J/cm^2 increments to a maximum of 3 J/cm^2 Comparative arm BB-UVB (43) outside scope so has not be extracted. Paper also compared data to published papers using PUVA	**Disease improvement: Complete clinical disappearance of lesions (CP)** IA: 84% IB: 78% Mean time to: 14.8 weeks (4-36) **Sustained clearance/benefit: ≥6 months (**27 weeks)	Attrition: 3% due to photosensitive disorder that was unknown prior to treatment. Partial response: IA (0), IB (11) No response: IA (12), IB (5) Mean time to complete response (range): 12.8 weeks (4-36) **Minor adverse events** Side-effects, mostly mild pruritus and mild burn/ erythema occurred in 32% of cases. **Author's conclusion:** Results are

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
			65%	comparable to all previously reported for skin-targeted treatments. Among responding patients there is no relapse during prolonged follow-up in about one third of the cases. Thus, we believe treatment should be stopped completely following first CR induction and maintenance treatment should be considered for relapsing patients only.
Gökdemir G, *et al.* Narrowband UVB phototherapy for early-stage mycosis fungoides: evaluation of clinical and histopathological changes. *J Eur Acad Dermatol Venereol* 2006; **20**:804-9. Prospective, single out-patient clinic (2002-4), Turkey Mean f/up (range): 10.87 months (1-25)	n=23 early stage MF 3 F: 20 M Mean age (range): 52.35 years (27-78) Skin type: II (5), III (14), IV (4) Stage: IA (6), IB (15), IIA (2) Patch (18), plaque (5)	NB-UVB Total body exposure three times a week. Initial dose was adjusted to the skin type of the patient, starting with an irradiation dose of 0.3 J/cm^2 for type II, 0.4 J/cm^2 for type IV and 0.5 J/cm^2 for skin type V. Fixed dose increments were applied according to skin phototype. Therapy was given until more than 90% clearing of the patient's skin lesions had occurred. Mean cumulative dose (range): 90.26 J/cm^2 (47–231 J/cm^2)	**Disease improvement: response** **Clinical** Complete response: 21 [patch (18), plaque (3)] Partial response: 1 (plaque) No response: 1 (plaque) **Histopathological** Complete response: 18 [patch (17), plaque (1)] Partial response: 3 [patch (1), plaque (2)] No response: 2 (plaque) **Sustained response: f/up** 20 [only 1 relapse]	Once the clinical and histopathological responses were achieved, treatment was continued two times a week for 4 weeks and once a week for 4 weeks (another 8 weeks). If complete clinical response was achieved but the patient had poor histological improvement, maintenance treatment was started. **Author's conclusion:** NB-UVB therapy for patients with early-stage MF is an effective and safe treatment with the effect lasting for months. We suggest that clinical clearance correlates with histological improvement except for patients in the plaque stage.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
		Mean number of treatments was 36.22 (23-53)	**Minor adverse events** 6 Pruritus (2), postlesional hyperpigmentation (2), Erythema (1), Burning (1)	
Kural Y, *et al.* Efficacy of narrowband UVB phototherapy in early stage of mycosis fungoides. *J Eur Acad Dermatol Venereol* 2006; **20**:104-5. Prospective, Turkey F/up: all patients followed up (time period not specified). Range 3-36 months	n=23 MF 8 F: 15 M Mean age (range): 45 years (4-80) Stage: IA (10), IB (13)	NB-UVB Three times a week. Initial dose was 70% of the MED and the dose was increased by 15% in each subsequent session. Patients were allowed to use emollients.	**Disease improvement: response** Complete response: 19 Partial response: 4 **Sustained response: f/up** 12 [7 relapsed within 3-16 months] **Treatment tolerability** Well tolerated except for the minor adverse events below **Minor adverse events** Mild erythema, pruritis, post-inflammatory pigmentation	Mean relapse-free interval (range): 16 months (3-36) **Author's conclusion:** NB-UVB is effective, with fewer side-effects, in the treatment of early MF, especially in stage IA.
Boztepe G, *et al.* Narrowband ultraviolet B phototherapy to clear and maintain clearance in patients with mycosis fungoides. *J Am Acad*	n=14 MF 4 F: 10 M Mean age (range): 43.36 years (28-74) Skin type: II (7), III (7)	NB-UVB (11) 3 time a week. Initial dose determined by MED, dose increments each visit NB-UVB after PUVA (3)	**Disease improvement: response** Complete response: 11 [IA (2), IB (5), IIA (4)] Partial response: 1 [IA]	Attrition: 1 lost to f/up Eight patients completed the recommended maintenance NB-UVB therapy protocol. The median duration of maintenance was 18

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Dermatol 2005; **53**:242-6. Retrospective (May-2000-June 2003), F/up: median 22 months (7-43) up to April 2004	Stage: IA (4), IB (6), IIA (4)	Same regimen Mean number of treatments (SD): 25.4 (9.0)	No response: 2 [IA (1), IB (1)] **Sustained response:** **≥6 months**: 9/10 [patient that relapsed did not have maintenance treatment] **≥12 months**: 9/10 **≥18 months**: 8/10 **≥24 months**: 4/10 **≥36 months**: 3/10 **≥48 months**: 1/10	months (range, 12-30 months). No patient had relapse during maintenance. Mean relapse-free duration (SD): 26.0 (9.9) months **Author's conclusion:** This study provides evidence that NB-UVB might be an efficient treatment option for MF patients at stages IA and IB, as well as at stage IIA. Results suggest that using maintenance phototherapy after CR is a logical approach, which may prolong the duration of remission in MF.
Ghodsi SZ, *et al.* Narrow-band UVB in the treatment of early stage mycosis fungoides: report of 16 patients. *Clin Exp Dermatol* 2005; **30**:376-8. Prospective, Iran Mean f/up (SD): 11.7 (7.7) months	n=20 early stage MF 9 F: 7 M* Mean age (range): 40 years (22-65) Skin type: II (1), III-IV (15)	NB-UVB TL-01 phototherapy three times per week on non-consecutive days according to standard protocol Patients were advised to protect their skin against excessive exposure to natural sunlight, and to apply a sunscreen on sun-exposed areas. Patients in the CR group had a mean of 27.9 treatments (range, 13–48) and a mean cumulative UVB dose of 26 J ⁄cm^2 (range, 4.8– 65.4 J ⁄cm^2).	**Disease improvement:** Complete (>95% clearing of lesions): 12 Partial (50%-95% clearing): 3 None (>50% clearing): 1 **Sustained clearance** 6/12 relapsed in a mean time of 4.5 months (range 3-12 months) **Minor adverse events: post-inflammatory hyperpigmentation at the site of diseased skin** 6/12 with CR	Attrition: 4 stopped treatment due to travel time and cost *Baseline characteristics only given for those that completed treatment The complete clinical response could be confirmed histologically in 11 patients who had a punch biopsy specimen taken before and after therapy. **Author's conclusion:** The present study indicates that NB-UVB is an effective treatment modality for early stage MF.

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Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Herzinger T, *et al.* Treatment of small plaque parapsoriasis with narrow-band (311 nm) ultraviolet B: a retrospective study. *Clin Exp Dermatol* 2005; **30**:379-81. Retrospective, single phototherapy division (1996-2002), Germany	n=16 small plaque parapsoriasis 3 F: 13 M Mean age (range): 62 years (42-75) Skin type: II (14), III (2)	NB-UVB Three to five times per week in walk-in phototherapy units. Initial treatment dose was 0.2 J⁄cm^2, 311 nm. The dose was increased at every treatment by 0.1 J⁄cm^2. If the last dose had caused symptomless erythema, the same dose was given again. Unless indicated otherwise, therapy was performed until complete clinical remission. Mean total dose (range): 35.4 J/cm^2 (14.1-78.8 J/cm^2) Mean number of sessions (range): 32.8 (19-50).	**Disease improvement: response** Complete response: 16 **Sustained clearance*** [6 relapsed, mean interval until relapse (range): 29 weeks (7-118) **Minor adverse events** Rare, during 26/792 (3.3%) individual NB-UVB exposures and mild. Asymptomatic erythema (9), erythema with tenderness (17).	*10 patients received only one course of NB-UVB and were lost to follow-up, so data on duration of complete response is not available Table (6) & text (5) don't agree on how many relapsed. **Author's conclusion:** NB-UVB is an effective, comparably safe and convenient alternative to PUVA or other treatment modalities in the suppression of small plaque parapsoriasis.
Mori M, L *et al.* Monochromatic excimer light (308 nm) in patch-stage IA mycosis fungoides. *J Am Acad Dermatol* 2004; **50**:943-5. F/up: 3-28 months	n=4 stage IA MF with 7 patch lesions 2 F: 2 M Age range: 35-78 years Relapse after PUVA therapy: 3	NB-UVB 308-nm monochromatic excimer light The number of weekly sessions varied from 4 to 11 (mean 6.5; median 5.5). The total UVB 308-nm irradiation dose ranged from 5 to 9.3 J/cm^2 (mean 7.1 J/cm^2; median 7 J/cm^2).	**Disease improvement: response** Clinical and histologic complete remission: 4 **Sustained clearance** All lesions remained in stable complete remission after a follow-up of 3 to 28 months.	No remarkable side effects were reported. **Author's conclusion:** Preliminary results suggest that monochromatic excimer light phototherapy is a possibly very useful treatment modality in patch stage IA MF.

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Appendix K: Pityriasis lichenoides

K.1 Summary of included studies

K.1.1 Systematic review

Study	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Maranda, *Am J Clin Dermatol* 2016; **17**:583-91.	Yes	Yes	PubMed, SCOPUS databases	Yes	Yes	Case series, case reports

Comments: Systematic review on the use of phototherapy for treating pityriasis lichenoides (PL) both Pityriasis lichenoides et varioliformis acuta (PLEVA) and pityriasis lichenoides chronica (PLC) in the paediatric population. After 2007, the majority of studies reported (7/10) utilized NB-UVB as the phototherapy of choice (n= 9/33).

Overall, studies investigating phototherapy approaches to the treatment of PL are limited by their low power and short follow-up times.

Summary: Fourteen studies were identified including a total of 64 patients with PL treated with phototherapy. NB-UVB was used in nine studies (4 case series, 5 case reports)[46,134,203,386-391] with 29 paediatric patients treated.

In the largest study (n=9) patients with an average age of 11.5 years underwent an average of 19 treatment sessions, with a cumulative dose of 3.023–11.8 J/cm^2.[46] Some had been previously treated with topical steroids and oral erythromycin without clearance of the lesions. Total clearance of lesions (3/9), partial clearance (70–90%) (3/9), and no change (3/9).

In a second study (n=5) children with an average age of 10.4 years all showed complete remission at 6 months.[386] These patients had also been previously treated

with topical steroids and/or oral antibiotics without resolution of the lesions. NB-UVB with a peak emission in the range of 311–313 nm was used. The initial dose was 100 or 180 mJ/cm^2, which was then increased by 50 mJ/cm^2 and given two to three times weekly.

A third study treated five patients in the pediatric age range.[203] An average of 22 phototherapy sessions was given, with total doses ranging from 9 to 301 J/cm^2. All patients showed a response to treatment, although no further details were given regarding full clearance, remission, or time to follow-up.

The fourth study (n=4) treated patients with an average age of 11 years with NB-UVB light in the 309- to 313-nm spectrum three times per week. Initial dose was determined by skin type, and dose was subsequently increased by 10 % each session without erythema.[387] However, data regarding treatment efficacy in these patients was reported in combination with patients experiencing other skin disorders so was not reported.

The remaining five papers reported 6 case reports (aged 2, 8, 12, 13, 14, 16), complete clearance was obtained with three, >90% clearance with one, 'good results' with one and one discontinued treatment so outcome was undetermined.

An average of 18.8 sessions was needed to achieve results. Total dose varied widely, ranging from 3.023 to 301 J/cm^2.[134,203] The 23 cases with sufficiently reported data demonstrated initial clearance in 74 % of cases (17/23), partial clearance in 13 % of patients (3/23), and no clearance in 13 % (3/23).[134,203,386,388-390] No recurrence of the lesions was seen in the three studies with longer follow-up (3 months to 1 year).[386,388,389]

Conclusion: Phototherapy shows promising results and a favourable side-effect profile in the treatment of PL. Ultimately, large RCTs are needed to determine optimal treatments.

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K.1.2 Randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Farnaghi F, *et al.* Comparison of the therapeutic effects of narrow band UVB vs. PUVA in patients with pityriasis lichenoides. *J Eur Acad Dermatol Venereol* 2011; **25**:913-6. RCT, Iran F/up 3 months	n=15 pityriasis lichenoides NB-UVB 4 F: 4 M Mean age (SD): 32.7 (16) years Skin type: II (1), III (5), IV (2) PUVA 3 F: 4 M Mean age (SD): 29.4 (12) years Skin type: II (1), III (5), IV (1) Inclusion criteria: generalized disease involving at least 60% of BSA (based on Nine's Rule) and failed to respond to other modalities of treatment including	NB-UVB (8) Initial dose 200 mJ/m^2, then 3 times a week. Dosage was increased by 10% in every treatment session. In the case of mild side-effects including mild to moderate erythema, burning sensation, the dose was decreased by 50%. In the case of severe side-effects such as severe erythema, burning or photosensitivity, the treatment was stopped. If one or two sessions were missed, the dose was unchanged, and if more than three sessions were missed the dose was decreased by 75%. PUVA (7) 8-MOP 0.6 mg/kg at least 90 minutes before	**Disease improvement: ≥50% resolution in skin lesions** NB-UVB: 8 PUVA: 7 (>90% resolution in skin lesions NB-UVB: 7 PUVA: 5)	**Sustained clearance** Recurrence at 3 months was 3/8 NB-UVB and 2/7 PUVA. **Minor adverse events:** 2 experienced mild skin erythema (1 each group), 5 burning sensation (3 NB-UVB, 2

	topical and systemic measures. Exclusion criteria: pregnant, lactating women, history of collagen vascular disorder or cutaneous malignancies, positive antinuclear antibody tests, impaired liver or renal function tests, if they failed to pass routine ophthalmological assessment by an ophthalmologist and contraindication for phototherapy.	the commencement of UVA. Initial dose 1–1.5 J/m^2 for skin types I–III and 2 J/m^2 for patients with IV–V skin types. The dose increment was 2 J every two sessions. Maximum treatment sessions for both groups were 60. Mean treatment sessions (SD): 37 (11) NB-UVB and 40 (16) PUVA.	**Serious adverse events** No severe side-effects	PUVA)

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K.2: Narrative findings

K.2.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Eustace K, Dolman S, Alsharqi A *et al.* Use of Phototherapy in Children. *Pediatr Dermatol* 2017; **34**:150-5. Retrospective, single tertiary paediatric dermatology centre (June 2012-December 2013), UK. F/up: 12 months **STRATA**	n=75* children including 3 with pityriasis lichenoides chronica (PLC) 40 F: 35 M Mean age (range): 10.6 years (3-17)	NB-UVB Initial dose of 70% of the MED. NB-UVB was administered three times per week, with the dose increased in 20% increments per treatment except for those with skin type 1, who were increased in 10% increments. Mean number of treatments (range): 24.66 (22-30)	**Disease improvement: clinical response** NB-UVB Clear/almost clear: 100% **Sustained clearance: ≥6 months (12 month f/up)** All patients were being managed on topical treatment	*atopic dermatitis (48), psoriasis (21), vitiligo (1), nodular prurigo (1), granuloma annulare (1) **Author's conclusion**: It is difficult to draw conclusions about PLC, because of the small numbers of patients. This was a retrospective study with a follow-up of only 12 months, so the long-term safety of phototherapy in children cannot be assessed.
Demirsoy EO, *et al.* Narrowband UVB in treatment of pityriasis lichenoides. *Turk Dermatoloji Dergisi* 2012; **6**:158-61. Retrospective, (2000-2011), Turkey	n=17 pityriasis lichenoides (including 14 pityriasis lichenoides chronica (PLC) & 3 pityriasis lichenoides et varioliformis acuta (PLEVA))	NB-UVB Mean number of sessions: 36.9.	**Disease improvement: clinical response** Complete: 4 Prominent: 6 Partial: 4 Unresponsive: 3	Attrition: during f/up 9 **Author's conclusion**: It is assumed that NB- UVB is a safe treatment method for PL.

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F/up: 41.1 months In Turkish from abstract			**Sustained clearance: ≥6 months** 7/8	
Saraç E, *et al.* Efficacy of narrowband ultraviolet B therapy in pityriasis lichenoides. *Marmara Med J* 2011; **24**:82-7. Retrospective, Turkey Some children In Turkish from abstract	n=25 pityriasis lichenoides Mena age (range): 22 years (3-49)	NB-UVB 3 times a week, until complete resolution or minimal residual activity was achieved Mean number of treatments (range): 24.6 (12-45)	**Disease improvement: clinical response** Complete: 17 Marked: 4 Moderate: 1 Mild: 1 None: 2	Attrition: during f/up 16 **Sustained clearance** All 9 patients who were followed up relapsed mean time 10.1 months (range 1-24 months) **Minor adverse events** Mild to moderate erythema at least once (8) **Author's conclusion:** The results of the present study show that NB-UVB is an effective and safe method in the treatment of pityriasis lichenoides.
Aydogan K, *et al.* Narrowband UVB (311 nm, TL01) phototherapy for pityriasis lichenoides. *Photodermatol Photoimmunol Photomed* 2008; **24**:128-33. Retrospective, Dermatology Department (2000-2007), Turkey	n=31 PL patients (including 23 pityriasis lichenoides et varioliformis acuta (PLEVA) & 8 pityriasis lichenoides chronica (PLC)) PLEVA 14 F: 9 M Mean age (range): 42.7 years (11-76)	NB-UVB 3-4 times a week. Initial dose 70% of the patient's MED. Dose was increased weekly by 20% if previous treatment had caused no or slight erythema. If previous treatment had produced marked erythema, the dose was not increased and if treatment had caused intense erythema, the dose was decreased by 10%. Maximum of 60 sessions. If a patient developed more than 90% clearance of	**Disease improvement: clinical response** PLEVA Complete (≥90%): 15 Partial (≤50%-<90%): 8	**Sustained clearance** Relapses occurred in 2 PLEVA and 2 PLC with CR (without any maintenance therapy) within a mean time period of 6 months (3–12 months) **Minor adverse events** Complete response PLEVA: 20% PLC: 57.1% Partial response: PLEVA: 62.5%

Mean f/up (SD): PLEVA: 6.9 (2.2) months PLC: 7.8 (2.3) months	Skin type: I-II (17), III (6) PLC 6 F: 2 M Mean age (range): 42.4 (19-70) Skin type: I-II (8)	clinical lesions before 50–60 sessions, phototherapy was stopped without any maintenance therapy.	PLC Complete (≥90%): 7 Partial (≤50%-<90%): 1	PLC: 0% **Author's conclusion**: NB-UVB therapy is an effective, safe and practical alternative treatment modality for the management of PLEVA and PLC.
Jury CS, *et al.* Narrowband ultraviolet B (UVB) phototherapy in children. *Clin Exp Dermatol* 2006; **31**:196-9. Retrospective review, two hospitals (1996-2002), UK **STRATA**	n=77 children treated with NB-UVB for a skin condition, including 2 with PLC 42 F: 35 M Median age (range): 12 years (4-16) Inclusion criteria: All children aged 16 years or under at the time of treatment	NB-UVB A MED was established in 42% (32⁄77) of patients, and these received a starting dose of 50% of their MED; the rest received an empirical starting dose. A regimen of 20% increments was used in most cases, reducing to 10% increments where necessary. Patients attending for treatment of photodermatoses were generally treated with a low increment regimen, increasing by 10% each treatment. Median number of treatments 24 (range 3-46)	**Disease improvement: clinical response** Clear: 2 (100%)	*psoriasis (35), atopic eczema (25), alopecia areata (6), polymorphic light eruption (3), acne (2), hydroa vacciniforme (2), pityriasis rubra pilaris (1), non-bullous ichthyosiform erythroderma (1) Anxiety was a significant problem for five patients (median age 7 years; range 4–15) **Author's conclusion**: NB-UVB phototherapy is a useful and well-tolerated treatment for children with severe or intractable inflammatory skin disease, but concerns remain regarding long-term side-effects.
Samson Yashar S, L *et al.* Narrow-band ultraviolet B treatment for vitiligo, pruritus, and inflammatory dermatoses. *Photodermatol Photoimmunol Photomed* 2003; **19**:164-8. Retrospective study,	n=117* (including 3 with PLC (2) or PLEVA (1))	NB-UVB TL-01 The average number of treatments was 33 for patients with inflammatory cutaneous disorders.	**Disease improvement** Moderate (26%-65%): 2 (PLC) None (<10%): 1 (PLEVA)	*vitiligo (77), atopic dermatitis (7), polymorphous light eruption (7), generalised pruritis (6), lichen planus (4), lichen simplex chronicus/prurigo (3), granuloma annulare (generalised) (2), pityriasis rubra pilaris (2), eosinophilic folliculitis (2), nummalar dermatitis (2), lymphomatoid papulosis (1), alopecia mucinosa (1)

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(1998-2201), USA				**Author's conclusion:** Long-term adverse effects and cost–benefit analysis of NB-UVB therapy compared to other treatment modalities remain to be determined.

K.2.2 Case reports

Study	Population	Intervention	Outcomes	Comments & additional data not in usable format
Salman A, *et al.* Successful treatment of pityriasis lichenoides chronica with narrow-band ultraviolet B therapy in a patient with Keratitis-Ichthyosis-Deafness syndrome: a case report. *Dermatol Online J* 2016; **22.** Case report, Turkey **STRATA**	Keratitis-ichthyosis-deafness in association with pityriasis lichenoides chronica 1 M 6 years	NB-UVB twice a week, initial dose 50 mJ/cm^2, with 10% dose increments at every session depending on erythema response Maximum dose 130 mJ/cm^2.	**Disease improvement** Complete resolution after 15 sessions (7 weeks)	*Treated with low dose acitretin as NB-UVB treatment could not be reinitiated due to difficulties in attending the hospital
			Sustained clearance: Recurrence after 26 months*	
			Treatment tolerability Well-tolerated without any adverse effects except for some milia	

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Appendix L: Subacute prurigo

L.1 Summary of included studies

L.1.1 Randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Gambichler T, *et al. Clin Exp Dermatol* 2006; **31**:348-53. RCT, university hospital, Germany	n=33 subacute prurigo (SP) NB-UVB 8 F: 5 M Mean age (SD): 61.8 (14.5) years MD-UVA1 10 F: 1 M Mean age (SD): 62 (11.5) years Bath PUVA 4 F: 5 M Mean age (SD): 61 (12.1) years Inclusion criteria: age ≥ 18 years; histopathologically proven SP; clinical PIP score (papules, infiltration and pruritus) ≥ 5 points Exclusion criteria: pregnancy or lactation, any internal immunomodulating or immunosuppressive therapy within the previous 4 weeks, any topical therapy other than emollients within the previous 2 weeks, and history of photosensitive disorders.	NB-UVB (13) Five times weekly for 4 weeks. Starting dose was 0.1 J/cm^2 NB-UVB for skin type II and 0.2 J/cm^2 for type III. Depending on tolerability and skin type, NB-UVB dosage was increased in increments of 0.1–0.2 J/cm^2. Maximum NB-UVB dose was 1.2 J/cm^2. MD-UVA1 (11) Same regimen. Each treatment session delivered 50 J/cm^2, and the average time required to apply this dose was about 22 min. Bath PUVA (9) Four times a week (Monday, Tuesday, Thursday, Friday). Initially with 0.2 J/cm^2 UVA for skin type II and 0.3 J/cm^2 for skin type III. Depending on tolerability and skin type, the UVA doses were gradually increased (0.2 or 0.3 J/cm^2 UVA) on each third treatment session, up to a maximum single dose of 2.4 J/cm^2. F/up: 6 weeks	**Disease-specific physician assessment: mean change in PIP score (ITT)** NB-UVB Mean (SD): 2.08 (1.38) MD-UVA1 Mean (SD): 3.63 (1.29) Bath PUVA Mean (SD): 4.44 (1.42) **Serious adverse events** None	Attrition at 4 weeks: 5; (B-UVB (4), bath PUVA (1) Further attrition at f/up: 9; NB-UVB (5), MD-UVA1 (1), bath PUVA (3) Concomitant conditions: arterial hypertension (10; 30%), diabetes mellitus (7; 21%) and atopy (3; 9%) At 6-week follow-up, only five patients (NB-UVB (4) & MD-UVA1 (1)) had stable disease, all the others had relapsed. However, both ITT and PP analysis revealed significantly lower PIP scores in all groups at follow-up compared with baseline (range p = 0.005–0.047).

L.2 Narrative findings

L.2.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Tamagawa-Mineoka R, *et al.* Narrow-band ultraviolet B phototherapy in patients with recalcitrant nodular prurigo. *J Dermatol* 2007; **34**:691-5. Open, prospective, Japan F/up: 1 year	n=10 recalcitrant nodular prurigo 1 F: 9 M Mean age (range): 44.9 years (23-78) Skin type: IV (10) Inclusion criteria: Resistant for at least 6 months to ultrapotent topical corticosteroids such as 0.05% clobetasol propionate. They had multiple nodules with superimposed excoriations and were tormented by pruritus of intense severity. Exclusion criteria: If they required systemic steroids, systemic antihistamines or topical corticosteroids during the study or in the month prior to enrolment; history of photosensitivity; who had received phototherapy.	NB-UVB Once a week, initial dose was 0.4 J/cm^2. The dose was increased by 0.1 J/cm^2 for each treatment. The treatment was performed until the eruption was almost clear. Mean cumulative dose 23.88 J/cm^2 was applied over a mean of 24.3 irradiations. The mean maximum daily dose was 1.2 +/- 0.4 J/cm^2.	**Disease improvement: subjective or objective improvement at end of treatment** Mean subjective score (SD): Baseline: 6.9 (1.2) End: 2.1 (1.7) Mean objective score (SD): Baseline: 21.87 (4.53) End: 3.66 (2.46) **Sustained clearance: 1 year** 9	**Minor adverse events** Minor erythema (2) Mean score at 1-year f/up (SD): Mean subjective score: 2.0 (1.9) Mean objective score: 3.54 (2.76) **Author's conclusion**: NB-UVB phototherapy appears to be an effective treatment for recalcitrant nodular prurigo, offering long-term benefits in the majority of those treated**.**

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Samson Yashar S, L *et al.* Narrow-band ultraviolet B treatment for vitiligo, pruritus, and inflammatory dermatoses. *Photodermatol Photoimmunol Photomed* 2003; **19**:164-8. Retrospective study, (1998-2201), USA	n=117* (including 3 with lichen simplex chronicus/prurigo	NB-UVB TL-01 The average number of treatments was 33 for patients with inflammatory cutaneous disorders.	**Disease improvement** Significant (66%-100%): 2	*vitiligo (77), atopic dermatitis (7), polymorphous light eruption (7), generalised pruritis (6), lichen planus (4), granuloma annulare (generalised) (2), pityriasis lichenoides chronica (2), pityriasis rubra pilaris (2), eosinophilic folliculitis (2), nummalar dermatitis (2), lymphomatoid papulosis (1), alopecia mucinosa (1), pityriasis lichenoides et varioliformis acuta (1) **Author's conclusion:** NB-UVB may be considered as a viable therapeutic option in the treatment of pruritus. Long-term adverse effects and cost–benefit analysis of NB-UVB therapy compared to other treatment modalities remain to be determined.

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L.2.2 Case reports

Study	Population	Intervention	Outcomes	Comments & additional data not in usable format
Eustace K, Dolman S, Alsharqi A *et al.* Use of Phototherapy in Children. *Pediatr Dermatol* 2017; **34**:150-5. Retrospective, single tertiary paediatric dermatology centre (June 2012-December 2013), UK, **STRATA**	n=75* children including 1 with nodular prurigo 40 F: 35 M Mean age (range): 10.6 years (3-17)	NB-UVB Initial dose of 70% of the MED. NB-UVB was administered three times per week, with the dose increased in 20% increments per treatment except for those with skin type 1, who were increased in 10% increments. Number of treatments: 25	**Disease improvement: clinical response** NB-UVB Clear/almost clear: 100%	Attrition: patient lost to follow-up *atopic dermatitis (48), psoriasis (21), pityriasis lichenoides chronica (3), vitiligo (1), granuloma annulare (1)
Jang MS, *et al.* Successful treatment with narrowband UVB phototherapy in prurigo pigmentosa associated with pregnancy. *Eur J Dermatol* 2011; **21**:634-5. South Korea	Prurigo pigmentosa associated with pregnancy	NB-UVB Pruritus decreased significantly after first session and both pruritus and eruptions disappeared after fifth session, leaving only residual reticular pigmentation. No recurrence in 8 months follow-up.	**Disease improvement** Successful	
Park HS, *et al.* [A case of prurigo nodularis treated with narrow-band UVB and naltrexone]. *Korean J Dermatol* 2005; **43**:1113-5. In Korean extracted from English abstract	Treatment-resistant prurigo nodularis	NB-UVB twice a week for 3 months Naltrexone 50mg was also taken daily before sleep	**Disease improvement** Almost completely disappeared after 3 months	

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Appendix M: Pruritus

M.1: Summary of included studies

M.1.1: Randomised controlled trial

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Maul JT, *et al. J Eur Acad Dermatol Venereol* 2017; **31**:1208-13. RCT, NCT01254240, Dermatology out-patient clinic, university hospital (2010-2015), Switzerland	n=53 inflammatory skin diseases with pronounced itching* (including 5 with pruritus) NB-UVB+UVA 12 F: 14 M Median age (range): 46.5 years (19-75) Skin type: II (13), III (8), IV (1), V (1) NB-UVB 9 F: 18 M Median age (range): 58.0 years (23-83) Skin type: II (14), III (10) Inclusion criteria: Over 18 years, suffered from inflammatory skin disease; pruritus VAS scores ≥ 5, and had an indication for phototherapy Exclusion criteria: foreseeable interruption of the light therapy for more than 14 days, displayed heightened photosensitivity to UVA or UVB, withdrew their consent to participate, concomitantly participated in another study or had taken part in another clinical study within the last 30 days.	Combination NB-UVB + UVA (26) Three times a week over 16 weeks NB-UVB treatment is started at a dosage of 0.1J/cm^2. In the absence of side effects, such as UV-induced erythema, the dosage was increased in increments of 20% per session, to a maximum dosage of 2.0 J/cm^2. UVA was additionally administered at a dosage of 0.5 J/cm^2 during standard NB-UVB treatment, and was increased in increments of 20%, to a maximum dosage of 5.0 J/cm^2. NB-UVB monotherapy (27) Same regimen	**Serious adverse events** NB-UVB+UVA: 0 NB-UVB: 3 (2 exacerbations, 1 developed suberythroderma)	* eczema (27), psoriasis (14), prurigo simplex subacute (5), other (5) Attrition: 8; NB-UVB+UVA (5), NB-UVB (3) **Change in psychological well-being: Mean change in DLQI** NB-UVB+UVA: 9.0 *p*=0.0005 NB-UVB: 5.4 *p*=0.0024 **Disease-specific physician assessment: Mean pruritus score change using VAS** NB-UVB+UVA: 5.0 *p*=0.0001 NB-UVB: 4.7 *p*<0.0001 **Disease-specific physician assessment: Mean pruritus score change using 5-D itch score** NB-UVB+UVA: 6.5 *p*=0.0038 NB-UVB: 10.4 *p*<0.0001 **Disease-specific physician assessment: Mean change in**

				disease activity (PASI, EASI, PSGA, DDV) NB-UVB+UVA: 9.7 *p*=0.0005 NB-UVB: 10.7 *p*<0.0001
Ko MJ, *et al. Br J Dermatol* 2011; **165**:633-9. Single blind RCT, NCT00494975, University hospital (June 2007-July 2009), Taiwan	n=21 refractory uraemic pruritus NB-UVB arm 5 F: 6 M Mean age (SD): 60.9 (11.5) years Skin type: III (1), IV (10) Comorbidities: cardiovascular diseases (8), diabetes mellitus (3), atopic diathesis (1) Control arm 5 F: 5 M Mean age (SD): 63.2 (11.3) years Skin type: III (1), IV (9) Comorbidities: cardiovascular diseases (4), diabetes mellitus (4), atopic diathesis (2) Inclusion criteria: >18 years, with CKD stage III–V. Patients with pruritus with a VAS score > 5 and an itching duration of longer than 2 months were enrolled. CKD stage III–V was defined by a stable estimated glomerular filtration rate < 60 mL/min for more than 3 months. Exclusion criteria: Pregnant or breastfeeding, and those with a history of photosensitivity.	NB-UVB (11) Three times a week for 6 weeks. Initial dose 210 mJ/cm^2 increased by 10% each time. Control (10) Long-wave UVA same regimen, doses of UVA were approximately 1– 6 J/cm^2.	**Disease-specific physician assessment: Decrease in VAS scores of pruritus intensity at end of treatment (6 weeks)** NB-UVB: -3.53 (95% CI -6.02 to -1.03) Control: -3.38 (95% CI -5.54 to -1.21) **Disease-specific physician assessment: Decrease in VAS scores of pruritus intensity at follow-up (12 weeks)** NB-UVB: -3.91 (95% CI -6.17 to -1.64) Control: -2.24 (95% CI -4.25 to -0.23)	Attrition: 3: NB-UVB (1), UVA (2) **Treatment tolerability:** NB-UVB well tolerated **Minor adverse events**: Erythema lasting for more than 24 hours (1), erythema with pruritus (1). There was no serious treatment-related adverse event in either group. The NB-UVB group showed significant improvements in 'difficulty in falling asleep' (*p* =0.02) and 'disturbance of sleep' (*p* =0.01), but these improvements were not seen in the control group. However, the differences in sleep quality at baseline and week 6 did not reach statistical significance between the NB-UVB and control groups.

M.1.2 Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Sherjeena PB, *et al.* A controlled trial of narrowband ultraviolet B phototherapy for the treatment of uremic pruritus. *Indian J Dermatol Venereol Leprol* 2017; **83**:247-9. Controlled trial with systematic alternative allocation, out-patient clinic (April 2012-March 2013), India	n=30 uremic pruritus in stage IV or V renal disease NB-UVB Age: 26-35 (1), 36-45 (4), 46-55 (8), 56-65 (4), 66-75 (1), >75 (1) Control arm Age: 26-35 (2), 36-45 (3), 46-55 (2), 66-75 (2) Inclusion criteria: >18 years, having a uremic pruritus score of more than 5 on the VAS. Exclusion criteria: history of photosensitivity, early renal disease (Stage I, II and III), pregnancy and lactation: those who had pruritus secondary to other skin or systemic diseases.	NB-UVB (15) Every 3rd day for 15 sessions. Initial dose 200 mJ/cm^2, increased by 10% each successive session, to a maximum of 1038 mJ at the end of fifteen sessions. Control arm (15) topical liquid paraffin and oral cetirizine (10 mg/day) for the same duration	**Disease-specific physician assessment: VAS score decreased to ≤3** 1 month NB-UVB: 15/15 Control: 0/0 3 months NB-UVB: 15/15 Control: 0/0 **Sustained benefit ≥6 months** 6 months NB-UVB: 13/15 Control: 0/0 **Minor adverse events** None	Uremic pruritus was defined as pruritus appearing shortly before the onset of dialysis, with three or more episodes of itching over a period of two weeks. **Disease improvement: mean VAS score (SD)** NB-UVB Baseline: 9.13 (0.4) After 1 month: 1.9 (0.4) After 3 months: 1.9 (0.4) After 6 months: 2.4 (0.8) Control arm Baseline: 9.1 (0.6) After 1 month: 8.8 (0.7) After 3 months: 8.8 (0.7) After 6 months: 8.8 (0.7)

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M.2: Narrative findings

M.2.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Seckin, D. *et al.* Generalized pruritus treated with narrowband UVB. *Int J Dermatol* 2007; **46**:367-70. Prospective study, Turkey F/up: 1 month after completing treatment then every 3 months for 1 year. Mean follow-up time (range): Uremic pruritus: 5.3 months, (1-12) Idiopathic pruritus: 5.9 (1-12)	n=46 generalized pruritus (including 17 uremic pruritus with a diagnosis of end-stage renal failure and 29 idiopathic pruritus) Uremic pruritus 5 F: 10 M Mean age (range): 65.8 years (33-87) Skin type: II (5), III (10) Undergoing hemodialysis: 10 Idiopathic pruritus 15 F: 10 M Mean age (range): 51.7 years (25-91) Skin type: II (6), III (18), IV (1)	NB-UVB Three times a week, initial dose was 150 mJ/cm^2 for skin types I–II, 200 mJ/cm^2 for skin types III–IV. Dosages were increased in each treatment session by 20% if there was no erythema. Treatment was discontinued when total resolution of pruritus was achieved or when there was no further improvement for the last 2 weeks. Mean number of treatments was 22 for both groups. Mean cumulative UVB dose was 24,540 mJ/cm^2 for the uremic pruritis group and 20,801 mJ/cm^2 for the idiopathic pruritus	**Disease improvement: >50% improvement** Uremic pruritus: 9 Idiopathic pruritus: 17 **Disease-specific physician assessment: Mean decrease in VAS scores of pruritus intensity (SD)** Uremic pruritus Baseline: 8.2 (1.5) End of treatment: 3.6 (3) *p<0.0001* Idiopathic pruritus Baseline: 7.1 (2.3) End of treatment: 2.3 (2.8) *p<0.0001* **Disease-specific physician assessment: Mean percentage change in VAS scores** Uremic pruritus 54.2% (95% CI 32.6-75.9) Idiopathic pruritus	Attrition: 11: 3 uremic pruritus (2 lost after baseline evaluation, 1 discontinued treatment); 8 idiopathic pruritus (4 lost after baseline evaluation, 4 discontinued treatment) Baseline characteristics only given for those that started treatment **Minor adverse events** Uremic pruritus: transient mild erythema (2) Idiopathic pruritus: transient mild/moderate erythema (6) **Author's conclusion:** NB-UVB is an effective and well-tolerated treatment option for patients with generalized pruritus.

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		group.	67.9% (95% CI 53.8-81.9) **Disease-specific physician assessment: Mean percentage change in pruritus grading score** Uremic pruritus Baseline:12 (4.1) End of treatment: 5.5 (2.7) *p<0.0001* Idiopathic pruritus Baseline: 8.8 (2.9) End of treatment: 3.9 (3.3) *p<0.0001* **Sustained clearance** Uremic pruritus 2/6 Idiopathic pruritus: 8/13	
Ada, S. *et al.* Treatment of uremic pruritus with narrowband ultraviolet B phototherapy: an open pilot study. *J Am Acad Dermatol* 2005; **53**:149-51. Pilot study	n=20 uremic pruritus 8 F: 12 M Median age (range): 44 years (27-76) Skin type: 11 (2), III (4), IV (14) Maintenance haemodialysis: 19	NB-UVB Whole body 3 times a week for 6 weeks. Initial dose determined by skin type, 200, 300, 400, 500 mJ/cm^2. Dose increment 100 mJ/cm^2 every session up to a maximum of 1,500 mJ.cm^2	**Disease improvement: ≥50% reduction on any baseline score (VAS or detailed cumulative score (DCS):** 8 **Sustained benefit: ≥6 months** 3/7 Pruritus recurred in 4. Mean time to recurrence (range): 2.5	Attrition: 10 did not complete treatment (6 were satisfied with the response: ≥50% reduction in both VAS and DSC at 3 weeks) **Minor adverse events**: mild erythema, irritation and mild vesiculation (2), heat in cabinet exacerbated pruritus (2) **Author's conclusion:** NB-UVB may

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			months (1-4).	be an effective treatment for patients with uremic pruritus. Recurrence of pruritus, however, is a frequent problem.
Samson Yashar S, L *et al.* Narrow-band ultraviolet B treatment for vitiligo, pruritus, and inflammatory dermatoses. *Photodermatol Photoimmunol Photomed* 2003; **19**:164-8. Retrospective study, (1998-2201), USA	n=117* (including 6 with generalised pruritis)	NB-UVB TL-01 The average number of treatments was 33 for patients with inflammatory cutaneous disorders.	**Disease improvement** Significant (66%-100%): 2 Moderate (26%-65%): 1 Mild (10%-25%): 1 None (<10%): 2	*vitiligo (77), atopic dermatitis (7), polymorphous light eruption (7), lichen planus (4), lichen simplex chronicus/prurigo (3), granuloma annulare (generalised) (2), pityriasis lichenoides chronica (2), pityriasis rubra pilaris (2), eosinophilic folliculitis (2), nummalar dermatitis (2), lymphomatoid papulosis (1), alopecia mucinosa (1), pityriasis lichenoides et varioliformis acuta (1) **Author's conclusion:** NB-UVB may be considered as a viable therapeutic option in the treatment of pruritus. Long-term adverse effects and cost–benefit analysis of NB-UVB therapy compared to other treatment modalities remain to be determined.
Baldo A, *et al.* Narrowband (TL-01) ultraviolet B phototherapy for pruritus in polycythaemia vera. *Br J Dermatol* 2002; **147**:979-81.	n=10 pruritus associated with polycythaemia vera 3 F: 7 M Mean age (range): 57.3 years (38-67)	NB-UVB TL-01. Initial dose 2/3rds of MED. 3 times a week, with dose increments of 10%-15% depending on skin type.	**Disease improvement:** Complete remission within 2-10 weeks of treatment: 8	Two patients had only a partial and temporary relief of pruritus after two cycles of treatment. These patients had very fair skin, and treatment produced symptomatic erythema necessitating discontinuation. **Sustained clearance**

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Prospective, Italy (This is included as a single study in Gambichler, J Am Acad Dermatol 2005.)				Relapse occurred within 8 months after stopping treatment **Author's conclusion:** NB-UVB phototherapy is effective for treatment of pruritus associated with polycythaemia vera and has the advantage of being less erythemogenic than BB-UVB**.**

M.2.2 Case reports

Study	Population	Intervention	Outcomes	Comments & additional data not in usable format
Koh MJA, *et al.* Aquagenic pruritus responding to combined ultraviolet A/narrowband ultraviolet B therapy. *Photodermatol Photoimmunol Photomed* 2009; **25**:169-70. Case report, Singapore	Aquagenic pruritus 1 M 19 years Skin type: IV	Combined UVA and NB-UVB Three times a week on non-consecutive days. Initial dose 200 mJ/cm^2 (NB-UVB) and 4 J/cm^2 (UVA), increase by 100 mJ/cm^2 (NB-UVB) and 1 J/cm^2 (UVA) as tolerated for 4 weeks. Then frequency of phototherapy was reduced to once or twice weekly and after another 8 weeks or 12 sessions of treatment, phototherapy was stopped due to resolution of symptoms.	**Disease improvement** Marked improvement after 4 weeks Resolution of symptoms 12 weeks **Sustained benefit: 1 year** Remains symptom-free	

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Madkan VK, *et al.* Resolution of pruritus secondary to polycythemia vera in a patient treated with narrow-band ultraviolet B phototherapy. *J Dermatolog Treat* 2005; **16**:56-7. Case report, USA	Pruritus secondary to polycythemia vera 1 M 77 years Skin type: I	NB-UVB Three times a week initial dose 130 mJ/cm^2, increased gradually as tolerated by 10–15 mJ increments until the sixth treatment, at which time he developed an itchy sunburn-like rash on his upper back. This was thought to be a light sensitivity reaction, and light was subsequently reduced from 175 mJ/cm^2 to 145 mJ/cm^2 and then to 130 mJ/cm^2. The light was never again increased above 180 mJ/cm^2, and was often held constant between 145 mJ/cm^2 and 160 mJ/cm^2.*	**Disease improvement** Significant improvement after 3 sessions Itching almost completely gone by 18th session **Minor adverse events** Itchy sunburn-like rash on his upper back	*Continued maintenance therapy twice a week at 150 mJ/cm^2
Hsu, M. M. *et al.* Uraemic pruritus responsive to broadband ultraviolet (UV) B therapy does not readily respond to narrowband UVB therapy. *Br J Dermatol* 2003; **149**:888-9.	Uraemic pruritus 1 F 39 years	NB-UVB Daily doses: 200, 240, 290, 350, 420 and 500 mJ/cm^2; cumulative dose 2000 mJ/cm^2	**Disease improvement** No improvement after 6 sessions BB-UVB was resumed	Previous treatment, unresponsive to antihistamines and emollients, significant improvement with BB-UVB (remission 7 months).
Holme SA, *et al.* Crotamiton and narrow-band UVB phototherapy: novel approaches to alleviate pruritus of breast carcinoma skin infiltration. *J Pain Symptom Manage* 2001; **22**:803-5.	Severe disabling pruritus secondary to breast carcinoma skin infiltration 1 F	Combined NB-UVB and topical* crotamiton Two times a week, with graded increases in dose and crotamiton10% cream in hydrogel dressing	**Disease improvement** Functional improvement that allowed the patient to read or sleep undisturbed	*initially seven topicals were tested and the patient was asked to rate them

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Case report, UK	59 years		**Disease-specific patient self-assessment** After several days: 5/10 After 1 month: 4/10	
Meola T, *et al.* The safety of UVB phototherapy in patients with HIV infection. *J Am Acad Dermatol* 1993; **29**:216-20. Case series*	Pruritus and HIV-infection 1M 43 years Skin type II Exclusion criteria: < 18 years, etretinate therapy within 1 year, phototherapy within 30 days	NB-UVB 50% MED with increases of 50%, 40%, 30% & 20% respectively of previous doses on successive treatments. End point of increase was a mild erythema 24 hours after exposure.	**Disease improvement** Decreased pruritis	*Others had psoriasis Had received zidovudine treatment for over 5 months

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Appendix N: Chronic spontaneous urticaria

N.1: Summary of included studies

N.1.1 Randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Bishnoi A, *et al. Br J Dermatol* 2017; **176**:62-70. RCT, single tertiary care centre (June 2013-June 2014), India	n=50 steroid-dependent antihistamine-refractory chronic urticaria (CU) NB-UVB 15 F: 10 M Mean age (SD): 35.5 (11.7) years Skin type: III (10), IV (11), V (4) Mean (SD) aUAS7: 5.0 (0.7) Mean (SD) OSS: 1.3 (0.5) Mean (SD) IgE levels: 403.0 (305.9) IU/mL PUVA 15 F: 10 M Mean age (SD): 33.7 (8.1) years Skin type: III (17), IV (7), V (1) Mean (SD) aUAS7: 4.9 (0.8) Mean (SD) OSS: 1.6(0.5) Mean (SD) IgE levels: 721.2 (735.7) IU/mL Inclusion criteria: CU with active disease (having hives associated	NB-UVB Dose initiated and incremented based on Fitzpatrick skin types, as per standard guidelines, three times a week for a period of 90 days PUVA 0.6 mg/kg of 8-methoxypsoralen followed by UVA 2 hours later, same regimen F/up 90 days	**Disease improvement: clearance (with or without antihistamines) or marked improvement (occasional episodes, less extensive disease, symptomatic improvement (++), reduced antihistamine use)** 90 days NB-UVB: 24 (1: 23) PUVA: 23 (0: 23) 180 days NB-UVB: 23 (3: 20) PUVA: 23 (1: 22) **Disease-specific physician assessment: mean (SD) reduction in IgE levels** 90 days NB-UVB: 72.5 (211.7) PUVA: 279.6 (395.7)	Attrition: none **Disease-specific physician assessment: mean (SD) urticaria activity score 7 (aUAS7)** 90 days NB-UVB: 1.4 (0.7) PUVA: 1.9 (0.7) 180 days NB-UVB: 1.4 (1.0) PUVA: 1.5 (0.8) **Disease-specific physician assessment: mean (SD) outcome scoring scale (OSS)** 90 days NB-UVB: 4.0 (0.3) PUVA: 3.9 (0.3)

	with itching daily or almost daily, with or without angiooedema) for 6 months or more and refractory disease, defined as failure to respond to fourfold increased doses of second-generation AH1 given for at least 3 continuous months and requiring repeated courses of oral corticosteroids (CRU) Exclusion criteria: Physical urticaria, urticarial vasculitis, acute urticaria, angiooedema without weals, photosensitive disorders, intake of photosensitizing medications, claustrophobia, pregnancy and lactation, underlying hepatic and renal disease, cataract and history of anaphylaxis.		**Minor adverse events: nausea** NB-UVB: 0 PUVA: 6 **Minor adverse events: xerosis and tanning** NB-UVB: 13 PUVA: 14 **Minor adverse events: melasma** NB-UVB: 3 PUVA: 2	180 days NB-UVB: 4.0 (0.6) PUVA: 3.9 (0.5) **Patient satisfaction score** NB-UVB: 7.9 PUVA: 7.6 **Moderate disease improvement: symptomatic improvement (+), less frequent and less extensive disease** 90 days NB-UVB: 1 PUVA: 2 180 days NB-UVB: 1 PUVA: 1
Khafagy NH, *et al.* Comparative study of systemic psoralen and ultraviolet A and narrowband ultraviolet B in treatment of chronic urticaria. *Photodermatol Photoimmunol Photomed* 2013; **29**:12-7.	n=24 chronic urticaria NB-UVB 9 F: 3 M Mean age (range): 35.33 (14-58) Skin type: III (3), IV (9) 8 F: 4 M Mean age (range): 30.25 (21-43) Skin type: III (3), IV (9)	NB-UVB (12) Three sessions per week for a maximum of 20 sessions. Initial dose 0.5 J/cm^2. Dose increment 20% if no erythema, 10% if minimal erythema, none if intense erythema and/or edema and/or blisters, next session was skipped and returned to the previous dose. Mean cumulative dose was 37.83 (5.50) J/cm^2	**Disease improvement: improved** NB-UVB: 7 PUVA: 6 **Disease-specific physician assessment: Mean decrease in Total Severity Score (TSS)** NB-UVB: 9.00 (5.56) PUVA: 8.25 (5.28)	All patients had not responded to antihistamines or elimination diet.

RCT, Egypt	Inclusion criteria: suitable for phototherapy, not on any systemic immunosuppressive drugs or systemic steroids within 1 month or topical steroid within 2 weeks prior to the study, or recent phototherapy for any cause Exclusion criteria: physical, vasculitic, and neutrophilic urticaria	PUVA (12) Same regimen. Initial dose determined by skin type 1.5-2.0 J/cm^2. Dose increment 1 J/cm^2 same regimen. Mean cumulative dose was 76.75 (14.36) J/cm^2 .	**Minor adverse events: gastrointestinal tract upset** NB-UVB: 0 PUVA: 6	
Engin B, *et al. Acta Derm Venereol* 2008; **88**:247-51. Open RCT, single centre (June 2006-May 2007), Turkey	n=81 chronic urticaria Combination 34 F: 11 M Mean age: 34.2 years Mean baseline VAS: 6.07 Antihistamine monotherapy 19 F; 14 M Mean age: 32.6 years Mean baseline: 6.42 Exclusion criteria: Received phototherapy, used sun-beds, or had received systemic steroids, cyclosporine or immunosuppressive therapy during the preceding 3 months, history of photosensitivity, urticaria caused by infection or food allergy, angioedema and symptomatic dermographism	Combination NB-UVB + antihistamine (48) NB-UVB phototherapy 3 times a week (Monday, Wednesday and Friday) combined with levocetirizine 10 mg daily. Antihistamine monotherapy (33) Same regimen	**Disease improvement: mean change in urticaria activity score (UAS) (SD)** **(treatment session 10)** Combination: 11.58 (6.75) Monotherapy: 6.09 (4.68) **Disease improvement: mean change in UAS (SD)** **(treatment session 20)** Combination: 16.78 (7.91) Monotherapy: 12.76 (7.47) **Disease improvement: mean change in UAS (SD)** **(3 months f/up)** Combination: 18.51 (8.35) Monotherapy: 2.24 (4.98) **Serious adverse events** None	Attrition: Combination arm: 3 withdrew before treatment **Disease-specific physician assessment: Mean VAS** **(treatment session 10)** Combination: 4.3 Monotherapy: 5.0 **(treatment session 20)** Combination: 3.0 Monotherapy: 4.2 **(3 months f/up)** Combination: 2.5 Monotherapy: 6.2

N.2 Narrative findings

N.2.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Aydogan K, *et al.* Narrowband ultraviolet B (311 nm, TL01) phototherapy in chronic ordinary urticaria. *Int J Dermatol* 2012; **51**:98-103. Prospective, Turkey F/up: 6 months to a year	n=22 chronic ordinary urticaria (COU)* 19 F: 3 M Mean age (range): 39.2 years (19-64) Skin type: I (1), II (19), III (2) Exclusion criteria: Received phototherapy, used sunbed, or had received systemic steroids, cyclosporin, or immunosuppressive therapy during the preceding three months; history of photosensitivity and angioedema.	NB-UVB Three or four times a week. initial dose 50%-70% MED, incremental regimen (20%/10%/0%) adjusted according to erythema responses. Median number of treatments was 31.4 (9-44), and the mean top dose was 9.46 J/cm^2 (1.1-16.4).	**Disease improvement** Clearance: 10 Marked: 5 Moderate: 7 **Disease-specific physician assessment: VAS** Baseline: 7.90 (1.44) After treatment: 2.72 (1.51) *p*<0.001 **Change in quality of life** Baseline: 7.17 (1.65) After treatment: 2.57 (1.6)	*not responded to at least two H1 antihistamines, and most had been treated with a variety of antihistamine combinations. Chronic urticaria impact on patients' quality of life according to interference with daily activities (such as outdoor activity, sports, work/study, leisure/social, and sexual activities, etc.), limiting and impairing sleeping function, and flare-up rates were assessed at baseline and after treatment. Scores ranged from 0 to 3 (0 = none; 1 = mild; 2 = moderate; 3 = severe). Therefore, total quality of life score ranged from 0 to 9. **Author's conclusion:** NB-UVB therapy is an effective, well-tolerated treatment option in second-line therapy for COU. This therapy can lead to subjective relief of pruritus and whealing and objective reduction of whealing. Further larger

			Sustained clearance: ≥6 months 6/15 Others had a few recurrent lesions that did not need retreatment.	studies with longer follow-up periods are necessary to determine the proper clinical response and long-term complications of this therapy in COU.
Borzova E, *et al.* Narrowband ultraviolet B phototherapy is beneficial in antihistamine-resistant symptomatic dermographism: a pilot study. *J Am Acad Dermatol* 2008; **59**:752-7. Open uncontrolled prospective study, (February 2003-August 2007), USA F/up: 3 months Disease improvement:	n=8 symptomatic dermographism 6 F: 2 M Mean age: 35.7 years Skin type: II (4), III (2), IV (2) Inclusion criteria: ≥18 years, at least a 3-month history of symptomatic dermographism; whealing at a pressure of 36 g/mm^2 or less off antihistamines; and poor control by at least two previous non-sedating antihistamines. Exclusion criteria: symptomatic dermographism associated with chronic ordinary urticaria; previous melanoma, squamous carcinoma, or light-sensitive dermatoses.	NB-UVB 3 times a week for 6 weeks. Initial doses 50% MED, with 20% to 0% increments as tolerated Mean cumulative UVB dose of 21,950 (7900) mJ/cm^2 (range 14,270-39,490). Fexofenadine (180 mg/day) was taken during the run-in period and subsequently throughout the study and follow-up as required.	**Disease improvement: ≥50% reduction in pruritus, as assessed on the VAS** 5/8 **Disease improvement: ≥50% reduction in whealing, as assessed on the VAS** 6/8 **Disease improvement: mean reduction in itching (SD)** 52.3% (31.6%)	Mean reduction in pruritis (SD): 52.3% (31.6) Mean reduction in whealing (SD):71% (54%) Sustained clearance Relapse in symptoms within 12 weeks and 18 weeks, pruritis and wheals (VAS scores) **Author's conclusion:** NB-UVB phototherapy is an effective second-line treatment for patients with severe symptomatic dermographism responding poorly to fexofenadine. This therapy can lead to subjective relief of pruritus and whealing and objective reduction of whealing. NB-UVB phototherapy may restore symptom control with antihistamines in some patients.

			Serious adverse events None	
			Treatment tolerability Well tolerated by all patients	
Berroeta L, *et al.* Narrow-band (TL-01) ultraviolet B phototherapy for chronic urticaria. *Clin Exp Dermatol* 2004; **29**:97-8. Retrospective, (1986-2000), UK	n=94 chronic urticaria* including 88 with chronic idiopathic urticaria 68 F: 28 M Mean age (range): 44 years (12-81) Skin type: I-III (88)	NB-UVB 3 times a week, initial dose 70% MED, following a percentage incremental regimen adjusted according to erythema Median number of treatments 22 (range 2-37) 113 treatment courses: 95 were detailed enough for evaluation	**Disease improvement** Good response 68 courses (72%) Clearance: 40% Marked: 15% Moderate: 45%	* not responded to at least two H1 antihistamines, and most had experienced a variety of antihistamine combinations, and a trial of a diet low in salicylate and histamine releasing foodstuffs. **Sustained clearance** F/up 4-12 weeks (63 patients: 73 courses) 58 courses (79%) produced a good response (clearance 30%, marked improvement 29%, moderate improvement 20%) F/up in 2002 (57 patients) Clear: 19 Still suffering from chronic idiopathic urticaria: 38 (26 felt their condition had improved: 12 felt it was unchanged) **Author's conclusion:** NB-UVB is a useful second-line therapy for chronic urticaria.

Appendix O: Other skin diseases excluding photodermatoses

O.1 Alopecia areata

O.1.1: Narrative findings

O.1.1.1: Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Bayramgürler D, *et al.* Narrowband ultraviolet B phototherapy for alopecia areata. *Photodermatol Photoimmunol Photomed* 2011; **27**:325-7. Retrospective review (2004-9), Turkey	n=29* alopecia areata 16 F: 9 M Mean age (SD): 31.2 (9.5) years Skin type: II (19), III (6) Extent of disease: S3 (9), S4 (6), S5 (3), S5B (7)	NB-UVB All patients were treated initially, thrice a week. Initial treatment dose was determined according to the skin phototype: 0.2 J/cm^2 for skin phototype II and 0.3 J/ cm^2 for phototype III. Treatment continued with 20% dose increases at each subsequent session to a maximum of 1.8 J/cm^2 The frequency was reduced to twice per week when terminal hair regrowth was seen with no further abnormal hair fall, then once per week, and finally terminated when regrowth was maintained. 8 patients also received monthly intramuscular triamcinolone acetonide	**Disease improvement: terminal hair regrowth** Excellent response (76%-100%): 6 (S3+S4 4; S5+ S5B 2) 4 also received the injections Good response (51%-75%): 3 (S3+S4 1; S5+ S5B 2) 1 also received the injections Fair response (25-50%): 4 (S3+S4 2; S5+ S5B 2) 2 also received the injections Poor response (0-25%): 12 (S3+S4 8; S5+ S5B 4) 1 also received the injections	Attrition: 4 (lost to f/up) *Those lost to f/up have not been included in the baseline Corticosteroids (topical, intralesional) had been used as first-line treatment in all patients without satisfactory results. Mean number of NB-UVB sessions (range): 46.4 (230-113) Mean cumulative dose (range): 63.9 J/cm^2 (28.1-154.0) **Author's conclusion**: NB-UVB is not an effective treatment with only 20% excellent treatment responses in patients with severe alopecia areata, most of whom were also treated with systemic

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		injections	**Treatment tolerability** Treatment was well tolerated by all patients	corticosteroids.
Aubin F, *et al.* Evaluation of a novel 308-nm monochromatic excimer light delivery system in dermatology: a pilot study in different chronic localized dermatoses. *Br J Dermatol* 2005; **152**:99-103. Prospective study, France	n=54 chronic and resistant localised dermatoses* including 8 with alopecia areata	NB-UVB MEL, weekly treatments for a minimum of 5 weeks and maximum of 10 weeks. The initial dose was based on multiples of a predetermined MED, and subsequent doses were based on the response to treatment. Average incident dose rate of 50 mW/cm^2 at a tube-to-skin distance of 15 cm and with a maximum irradiating area of 512 cm^2.	**Disease improvement: complete regrowth (90-100%)** 4/8 No effect was observed in the remaining four patients.	*palmoplantar pustular psoriasis (17), chronic atopic dermatitis of the hands (8), chronic nonatopic dermatitis of the hands (10), plaque-type psoriasis (7) and nail psoriasis (4), Mean percentage improvement: 47.5% F/up sustained percentage improvement Remained steady at 3 months, but significantly decreased 23.7% at 6-months. **Author's conclusion**: Preliminary results confirm the efficacy of this novel 308-nm MEL delivery system. Alopecia may benefit from this treatment.

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Jury CS, *et al.* Narrowband ultraviolet B (UVB) phototherapy in children. *Clin Exp Dermatol* 2006; **31**:196-9. Retrospective review, two hospitals (1996-2002), UK **STRATA**	n=77 children treated with NB-UVB for a skin condition, including alopecia areata (6) 42 F: 35 M Median age (range): 12 years (4-16) Inclusion criteria: All children aged 16 years or under at the time of treatment	NB-UVB To scalp only. A MED was established in 42% (32⁄77) of patients, and these received a starting dose of 50% of their MED; the rest received an empirical starting dose. A regimen of 20% increments was used in most cases, reducing to 10% increments where necessary. Median number of treatments 20 (range 17-41)	**Disease improvement: clinical response** Response was poor 5/6 record to be 'no better' Closer review of the case notes showed 2/6 had developed downy regrowth by the end of treatment but this was not sustained for longer than 2-3 months	*psoriasis (35), atopic eczema (25), polymorphic light eruption (3), acne (2), hydroa vacciniforme (2), pityriasis lichenoides chronica (2), pityriasis rubra pilaris (1), non-bullous ichthyosiform erythroderma (1) Anxiety was a significant problem for five patients (median age 7 years; range 4–15) **Author's conclusion**: Response was poor.

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O.2 Graft vs host disease (GVHD)

O.2.1: Summary of included studies

O.2.1.1: Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Ballester-Sánchez R, *et al.* The role of phototherapy in cutaneous chronic graft-vs-host disease: a retrospective study and review of the literature. *Actas Dermosifiliogr* 2015; **106**:651-7. Retrospective (March 2011-October 2014), Spain Median f/up (range): 25 months (2-42)	n=16 chronic cutaneous GVHD: sclerodermiform manifestations (3), non-sclerodermiform manifestations (9), mixed (4) 7 F: 9 M Mean age (SD): 48 (4) years Skin type: II (4), III (12) Disease type: generalised lesion (3), oral (5), ocular (7)	NB-UVB (6) 3 times a week, mean starting dose was 0.25 (0.03) J/cm^2. Maximum dose used was 0.84 (0.16) J/cm^2. PUVA (10) Same regimen: mean starting dose was 1.8 (0.18) J/cm^2. Maximum dose used was 4.4 (0.6) J/cm^2 (range, 2-7 J/cm^2)	**Disease improvement:** Complete response: 7 NB-UVB (4), PUVA (3) Partial response: 9 NB-UVB (2), PUVA (7) NB: Text has CR 9 and PR 7 which does not agree with above figures which were taken from the table which listed each patient's individual response.	**Reduction in other therapy** Ten able to decrease dose of corticosteroids during treatment, a further 3 decreased the number of other immunosuppressant drugs. **Author's conclusion**: Phototherapy is a good therapeutic option for patients with chronic GVHD with extensive cutaneous involvement, as well as for those who fail to respond to topical treatment or who have become steroid-dependent. The main benefits are that it reduces corticosteroid requirements and has a good safety profile. Treatment must be individualized and, in our experience, both the initial dose and the maximum dose per session can be lower than for other diseases.

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Duarte I, *et al.* Phototherapy in the graft versus host disease. *An Bras Dermatol* 2008; **83**:425-9. August 2004-February 2006, Brazil In Portuguese	n=9 with cutaneous manifestation of acute or chronic GVHD 5 F: 4 M Mean age (range): 25.3 years (22 months-60 years)	NB-UVB (3) 3 times a week PUVA (6) Same regimen	**Disease improvement:** All patients with acute GVHD showed improvement, with the disappearance of erythema and edema. There was good response to therapy in patients with chronic GVHD, with regression of lichenoid lesions and better mobility of patients with the sclerodermoid form.	Acute myeloid leukaemia (4), acute lymphoid leukaemia (2), bone marrow aplasia (1), myelodysplastic syndrome (1), severe immunodeficiency (1) **Author's conclusion**: Phototherapy showed to be effective in treating skin manifestations of acute and chronic GVHD. NB-UVB is an option for patients who cannot take systemic medications.

O.2.2: Narrative findings

O.2.2.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Balighi K, *et al.* Evaluation of narrow band UVB therapeutic effect on chronic mucocutaneous graft versus host disease lesions: A case series. *Iran J Dermatol* 2016; **19**:21-4. Case series, Iran F/up: 3 months	n=7 chronic mucocutaneous GVHD: lichenoid skin lesions (3), sclerodermoid lesions (2), mixed (2) Mean BSA involvement: 55.7%	NB-UVB Patients received several packs of NB-UVB phototherapy on their bodies. The duration of each package was at least four consecutive weeks. Each package contained 10 treatment sessions of NB-UVB (311 nm), approximately three non-consecutive sessions per week, with a duration of at least 10 seconds per session. Although we increased the duration of radiation in each	**Disease response:** Lichenoid lesions: response ratio 53.3% Baseline mean BSA: 51% After treatment: 16.6% Sclerodermoid lesions: response ratio 32.5% Baseline mean BSA: 55% After treatment: 25%	Attrition: 1 (lower respiratory tract infection) Acute lymphoblastic leukemia (7) and Fanconi anemia (2), acute myeloblastic leukemia (AML) (2), and chronic myelogenous leukemia (CML) (3) Mean patient satisfaction: 5.3/10 No serious complications during the 3 month f/up period. The mean numbers of phototherapy sessions were lichenoid (39),

		treatment session, the intensity was fixed (6 mj/cm^2).	Mixed: response ratio 35% Baseline mean BSA: 60% After treatment: 20%	sclerodermoid (43), and mixed types (31). Mean total radiation dosages were licheoid 21124 mj/cm^2, sclerodermoid 19960 mj/cm^2, and mixed types 16640 mj/cm^2. **Author's conclusion**: NB-UVB phototherapy is useful as an adjuvant therapeutic modality in cutaneous lichenoid and intraoral cGVHD with no serious adverse effects.
George L, *et al.* Efficacy of narrow band UVB in the treatment of cutaneous GvHD: An Indian experience. *Bone Marrow Transplant* 2016; **51**:988-90. Retrospective case series (May 2010-June 2013), India Median f/up (range): 31 months (10-50)	n=20 acute cutaneous GVHD following stem cell transplantation (SCT) 7 F: 13 M Median age (range): 18.5 years (5-49)	Combination NB-UVB and steroids (9) NB-UVB monotherapy (11) NB-UVB was administered at a median of 30 days post SCT (range: 15–117). The median number of treatment sessions were 5 (range: 5–15) and median duration of treatment was 20 days (range: 8–60).	**Disease improvement** Complete: 17 (8 combination, 9 monotherapy) Partial: 3 (1 combination, 2 monotherapy) **Sustained benefit: at f/up** Remain in complete remission (14)* **Treatment tolerability** All tolerated NB-UVB well	Median time to response (range): 16 days (6-30) * Died (3: 2 due relapse of disease, 1 due to renal failure), features of limited chronic cutaneous GVHD (all sclerotic) (3) **Author's conclusion**: NB-UVB is feasible and well tolerated and could be an effective treatment option for acute GvHD limited to skin in stage 2 and in selected patients with stage 3 and could be used as first-line treatment, when there is no systemic involvement. Large studies are needed to understand better the impact of NBUVB in acute cutaneous GVHD

Iyama S, *et al.* Narrowband ultraviolet B phototherapy ameliorates acute graft-versus-host disease by a mechanism involving in vivo expansion of CD4+CD25+Foxp3+ regulatory T cells. *Int J Hematol* 2014; **99**:471-6. Case series, (September 2010-April 2012), Japan F/up: 30 days	n=11 acute skin GVHD refractory to standard corticosteroid treatment and with no gut/liver involvement 3 F: 8 M Mean age (range): 47.6 years (22-66) Skin type: II (1), III (10) GVHD grade: I (1), II (10)	NB-UVB 3 times a week; frequency was sometimes reduced due to general condition of the patient. Initial dose 0.3 J/cm^2, which was increased each time by 20 % up to 1.4 J/cm^2. Median number of treatments was 10 times, with a mean cumulative exposure of 6.36 J/cm^2.	**Disease improvement: complete response (absence of lesions)** 8/11 (partial response 2, no response 1) **Minor adverse events** CTCAE grade 2 infections (2)*: Bacterial pneumonia (Methicillin-resistant Staphylococcus aureus) (1) and a urinary tract infection (1) CTCAE grade 2 anorexia (1) Grade 2 creatinine increment probably due to calcineurin inhibitor use (1) Grade 1 periodontal disease (1)	acute myeloid leukaemia (5), myelodysplastic syndromes (2), follicular lymphoma (1), peripheral T-cell lymphoma (1), primary myelofibrosis (1), severe aplastic anaemia (1) ***** Both patients were able to continue to receive NB-UVB therapy with appropriate treatment for each infection. **Author's conclusion**: NB-UVB may exert beneficial effects on steroid-refractory skin GVHD through the expansion of regulatory T cell (Tregs) in the patients' peripheral blood.
Brazzelli V, *et al.* Narrowband ultraviolet B phototherapy in the treatment of cutaneous graft-versus-host disease in oncohaematological	n=10 paediatric cutaneous GVHD resistant to first-choice immunosuppressive protocols: chronic (5), overlap syndrome (5)	NB-UVB Depending on patients' ability to attend the outpatients clinic, therapy was given two to three times weekly on non-	**Disease improvement: complete response (absence of lesions)** 8/10 (3 chronic, 5	Attrition: 2 lost to follow up 1 year (1 chronic, 1 overlap), additional 1 lost to follow up 2 years (1 overlap) Median time to complete remission

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paediatric patients. *Br J Dermatol* 2010; **162**:404-9. Case series, Italy F/up: 2 years **STRATA**	6 F: 4 M Median age (range): 12.5 (4-20) Acute lymphatic leukaemia (5), juvenile myelomonocytic leukaemia (2), acute myeloid leukaemia (1), congenital dyserythropoietic anaemia (type VII) (1), bone marrow aplasia (1)	consecutive days. Initial dose was 35 mJ/cm^2, 100 mJ/cm^2 or 180 mJ/cm^2, depending on skin phototype, patient age, cutaneous involvement and GVHD type, with dose increments of 50 mJ /cm^2. Median of 29 treatments (range 13–47), corresponding to a median of 7.5 weeks (52 days) of treatment (range 3–13 weeks). The average cumulative dose was 28.71 J /cm^2 (range 1.02–70.38 J/cm^2).	overlap) **Sustained clearance/benefit: ≥6 months** 6 months: 9/10 (90%) (4 chronic, 5 overlap) 1 year: 6/8 (75%) (2 chronic, 4 overlap) 2 years: 5/7 (71%) (2 chronic, 3 overlap)	(range): 52 days (3-13 weeks) **Author's conclusion**: This study provides evidence that NB-UVB phototherapy represents a valid second-line treatment in paediatric patients affected by GVHD and refractory to immunosuppressive first-line treatment.
Grundmann-Kollmann M, *et al.* Narrowband UV-B phototherapy in the treatment of cutaneous graft versus host disease. *Transplantation* 2002; **74**:1631-4. Case series, Germany F/up: 4-18 months	n=10 cutaneous GVHD (grade 2-3) resistant to standard immunosuppressive drugs 4 F: 6 M Mean age (range): 42.7 years (27-58) Skin type: II (6), II (3), IV (1)	NB-UVB 5 times a week. Initial doses in individual patients ranged from 0.1- 0.3 J/cm^2 were gradually increased up to 1.2 J/cm^2. After disappearance of cutaneous alterations, phototherapy was given as a maintenance therapy for at least 4 weeks. Mean cumulative dose of 12.2 J/cm^2 (range 7.6–17.7 J/cm^2) was applied in a mean number of 17.8 irradiations (range 12-25).	**Disease improvement: complete response (absence of lesions)** 7/10 (other 3 had partial remission) **Reduction of other therapy** In all patients, immunosuppressive medication could be reduced	Allogenic bone marrow graft from different sources for hematologic malignancy No side effects with the exception of mild erythema were observed in any of the patients. 3 patients died (1 CR – 6 weeks, 2 PR – 4 weeks & 8 months). All other patients are currently still alive (follow-up 4–18 months); no patient showed a relapse of GVHD **Author's conclusion**: NB-UVB phototherapy is a nonaggressive treatment that may benefit patients with cutaneous GVHD who already take high doses of immunosuppressive drugs.

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O.2.2.2 Case reports

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
Yatsuzuka K, *et al.* Case of thymoma-associated cutaneous graft-versus-host disease-like disease successfully improved by narrowband ultraviolet B phototherapy. *J Dermatol* 2018; **45**:479-82. Case report, Japan	Thymoma-associated GVHD-like disease localized to the skin resembling toxic epidermal necrolysis 1 F 52 years	Combination NB-UVB and prednisolone* Oral 50 mg prednisolone and whole-body NB-UVB five times a week, maximum dose 0.72 J/cm^2.	**Disease improvement** Eruption and itching in all areas improved approximately 10 days after starting NB-UVB, after which it was possible to taper prednisolone to 30 mg	*Prednisolone monotherapy was given initially but after 3 weeks NB-UVB was added as erythema, red papules and itching remained so prednisolone dose could not be tapered. Patient discharged from hospital after 10 weeks. Tapering of prednisolone continued with NB-UVB once a week
Nakayama M, *et al.* Thymoma-associated cutaneous graft-versus-host-like disease possibly treated with Narrow-band UVB phototherapy. *Eur J Dermatol* 2016; **26**:208-9. Case report, Japan	Thymoma-associated cutaneous graft-versus-host-like disease 1 M 32 years	NB-UVB on limited areas of lower right leg	**Disease improvement** Disappearance of the acanthosis and liquefaction degeneration of basal cells, and absence of apoptotic keratinocytes and migrated CD4+ and CD8+ cells, suggesting NB-UVB is possibly effective	Patient suffered from acute respiratory failure and died of sepsis soon after systemic NB-UVB phototherapy was started.

Jang S, *et al.* Chronic Graft-Versus-Host Disease Mimicking Psoriasis in a Patient with Hemophagocytic Lymphohistiocytosis. *Ann Dermatol* 2016; **28**:90-3. Case report, Korea	Generalized psoriasiform eruption associated with chronic GVHD that resulted in secondary vitiligo in a patient with hemophagocytic lymphohistiocytosis (HLH). 1 F 33 years	Combination NB-UVB and prednisolone Oral prednisolone 0.5 mg/kg daily and NB-UVB three times a week.	**Disease improvement** Psoriasiform lesions improved, with secondary vitiligo remaining on the corresponding locations.	
Sorenson E, *et al.* Narrowband UV-B phototherapy for steroid-refractory sclerotic chronic cutaneous graft-vs-host disease. *JAMA Dermatol* 2015; **151**:635-7. Case report, USA	Sclerotic chronic GVHD of the skin 6 years after HCT for treatment of chronic myelogenous leukemia. 1 F In her 40's	Combination NB-UVB, prednisone* and oral tacrolimus Prednisone,20 mg a day and oral tacrolimus dosed to therapeutic serum trough levels. NB-UVB three times a week, initial dose 130 mJ/cm^2, increased as tolerated Cumulative dose of 11.5 J/cm^2 over first 2 months; 21.9J/cm^2 at 3 months	**Disease improvement** At 2 months: Clinically significant response with marked flattening, softening, and lightening of hyperpigmented plaques and a reduction of diffuse skin tightness. At 3 months: Cutaneous lesions continued to improve, with clinically significant improvement of hyperpigmented plaques and skin tightness and a slower but appreciable response at areas of skin dimpling **Reduction of other therapy** Prednisone dose was tapered to 10 mg daily, oral tacrolimus was reduced but maintained at	* Combination of prednisone and oral tacrolimus given initially but as lesion were not responsive NB-UVB was added Control of the patient's sclerotic cutaneous GVHD has been maintained over 6 months of NB- UVB.

			therapeutic levels	

O.3 Progressive macular hypomelanosis

O.3.1 Summary of included studies

O.3.1.1. Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Selim MK, *et al.* Progressive macular hypomelanosis among Egyptian patients: a clinicopathological study. *Dermatol Pract Concept* 2011; **1**:5-11. Prospective, Dermatology Clinic (February 2006-	n=35 progressive macular hypomelanosis (PMH) 22 F: 7 M Mean age (range): 20.7 years (16-37) Inclusion criteria: ≥16 years, with acquired, hypopigmented, discrete or confluent macules larger than 1 cm in diameter, with normal sensation, consistent with the clinical features of PMH described by Gullet Exclusion criteria: hypopigmentation associated with	Combination NB-UVB plus daily topical clindamycin 1% and benzoyl peroxide 5% (15) NB-UVB, initial dose 100mJ/cm^2, and increased dose by 50mJ/cm^2) twice weekly for 28 sessions. Plus daily topical clindamycin	**Disease improvement: complete or nearly complete repigmentation (week 14)** Combination: 10 NB-UVB: 9	Attrition: 6 were lost to follow-up and excluded from the analysis, there are not included in the baseline characteristics

January 2010), assessing dermatologist was blinded for assigned treatment, Egypt F/up: 24 weeks	or the result of a specific disease at the site, such as pityriasis versicolor, hypopigmented macules of leprosy, hypopigmented mycosis fungoides, idiopathic guttate hypomelanosis, eczema, psoriasis, pityriasis lichenoides chronica, pityriasis rosea, injury, infection, or congenital disorders of pigmentation, such as piebaldism, nevus depigmentosus, ash leaf macules of tuberous sclerosis, pityriasis alba, and vitiligo; positive potassium hydroxide test results; were sensitive to any of the study medication ingredients or sunlight; were treated with chemical peeling or other treatments that could cause scaling of the trunk; or were pregnant or lactating.	solution 1% in the morning and benzoyl peroxide gel 5% in the evening NB-UVB (14) Same regimen	**Sustained clearance/benefit: at week 38 (24 weeks follow-up)** Combination: 2 NB-UVB: 2	
Duarte I, *et al.* Progressive macular hypomelanosis: An epidemiological study and therapeutic response to phototherapy. *An Bras Dermatol* 2010; **85**:621-4. Retrospective, phototherapy clinic, (1997-2008), Brazil	n=84 progressive macular hypomelanosis 66 F: 18 M Mean age (range): 20.83 years (13-36) White (71), non-white (13)	NB-UVB (57) 16 sessions, initial dose based on the phototype of each patient and then gradually increased PUVA (27) Dose of 0.4 mg/kg	**Disease improvement: ≥50% control*** NB-UVB: 30 (53.6%) PUVA: 16 (59.2%)	Attrition: 27; NB-UVB (20), PUVA (7) failed to complete the 16 sessions *Degree to which lesions lightened in colour NB-UVB Cured (100%): 14 Much improved (80%-99%): 12 Moderately improved (50%-79%):4 Slightly improved (<50%): 6 Unchanged: 1 PUVA Cured: 8 Much improved: 3 Moderately improved:5 Slightly improved: 2 Unchanged: 2

				After at least 3 months patients considered cured or much improved were contacted by telephone to evaluate persistence: 7 (28%) remained cured.

O.3.2 Narrative findings

O.3.2.1 Within-patient randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Sim JH, *et al.* Comparison of the clinical efficacy of NBUVB and NBUVB with benzoyl peroxide/clindamycin in progressive macular hypomelanosis. *J Eur Acad Dermatol Venereol* 2011; **25**:1318-23. Randomised left/right comparison study, (December 2008-October 2009), Korea F/up 6 months	n=10 Mean age (SD): 35 (5.2) years Skin type: III or IV Exclusion criteria: history of pityriasis versicolor or other inflammatory disorders in the hypopigmented spot; were sensitive to any of the ingredients of the study medication or sunlight; were treated with other treatments; or were pregnant or lactating	Combination NB-UVB plus antimicrobial therapy (benzoyl peroxide/clindamycin) NB-UVB twice a week. Initial dose 300 mJ⁄cm^2 and increased by 20% at each treatment session for 8 weeks with a total of 16 treatment sessions NB-UVB Same regimen The mean total dose was 12720 mJ⁄cm^2.	**Disease improvement: significant repigmentation at 8 weeks (mean difference in L values between lesional and non-lesional skin)** Combination Baseline:4.52 ± 1.65 8 weeks: 0.94 ± 0.65 NB-UVB Baseline: 4.34 ± 1.39 8 weeks: 1.18 ± 0.94	Attrition: 3 patients were lost to follow-up **Minor adverse events** Combination: transient irritation (5), erythematous skin eruption (2). All adverse effects were mild and resolved with topical corticosteroid therapy

			Sustained benefit: 6 months 4/7 some degree of clinical improvement remained	

O.3.2.2 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Kim M-B, *et al.* Narrowband UVB treatment of progressive macular hypomelanosis. *J Am Acad Dermatol* 2012; **66**:598-605. Prospective, University Hospital (January 2006-September 2008), South Korea Mean f/up (SD): 13.2 (8.2) months	n=23 progressive macular hypomelanosis 16 F: 7 M Mean age (range): 28.3 years (24-39) Skin type: III (4), IV (17), V (2)	NB-UVB Initial dose 300 to 350 mJ/cm^2, treatment was administered once or twice weekly. The dose was increased by approximately 20% on each subsequent visit until the optimal dose for obtaining minimal erythema in lesions was achieved. If a patient experienced symptomatic erythema, burning sensation, or blistering, the irradiation treatment was either omitted or the dose was decreased by 20%. Mean number and cumulative UVB dose of phototherapy was 20.3 times and 13,919 mJ/cm^2. In addition, the mean number of treatments required for the first repigmentation was 4.8.	**Disease improvement: ≥50 repigmentation** 13/16 (9 >90% repigmentation) **Sustained benefit: ≥6 months** 9/14* (4 with >90% repigmentation, 3 with <90% ≥50% repigmentation & 2 with <50% repigmentation) *2 patients had only been followed up for 1 month	Attrition:7: stopped treatment for personal reasons before completion of the study (6), dissatisfaction with repigmentation (1) **Minor adverse events** transient burning sensation (7) and mild pruritus (5). **Author's conclusion**: Suggests NB-UVB therapy is an effective and safe method for use in the treatment of progressive macular hypomelanosis.

Kwah YC, *et al.* Treatment of progressive macular hypomelanosis with narrow-band ultraviolet B phototherapy. *Photodermatol Photoimmunol Photomed* 2010; **26**:153-5. Retrospective, National Skin Centre (January 2007-April 2009), Singapore	n=6 progressive macular hypomelanosis 2 F: 4 M Mean age (range): 23.67 years (18-30) Chinese (6)	NB-UVB Initial treatment dose was determined as 70% of the patients' individual MED. Treatment was twice to thrice weekly. The dose was increased by 10–20% if previous treatment had caused no or slight erythema. Patients required 27 sessions (range, 16–48) to achieve moderate to good improvement in repigmentation.	**Disease improvement: ≥50 repigmentation** 6/6 (3 >90% repigmentation) **Minor adverse events** No adverse events documented	**Sustained clearance:** 2 no recurrence at 5 & 20 weeks 3 recurred at 4, 8 & 12 weeks 1 declined stopping **Author's conclusion**: NB-UVB as a monotherapy provides a viable and relatively safe, albeit temporary relief, for progressive macular hypomelanosis.
Hwang SW, *et al.* Progressive macular hypomelanosis in korean patients: a clinicopathologic study. *Ann Dermatol* 2009; **21**:261-7. Department of Dermatology (1996-2005), Korea	n=20 progressive macular hypomelanosis 15 F: 5 M Mean age (range): 23.85 years (14-28)	NB-UVB (6) Once or twice a week. Initial dose 400 mJ/cm^2. If no side effects were observed, the dose was subsequently increased by 10~ 20%. If the patient complained of erythema or pruritus, the light dose was kept the same. If pain or a burning mycosis fungoides, sensation was reported, the light dose was decreased by 20%. NB-UVB treatment was administered a mean (SD) of 12.33 (3.56) times at a mean light dose of 10.75 (3.06) J/cm^2. Topical drug therapy (7) 1% hydrocortisone lotion, 0.05% desonide lotion, or prednicarbate ointment (4); 0.025% tretinoin cream (2); 1% pimecrolimus cream once or twice daily (1)	**Disease improvement: clinically improved (repigmentation)** NB-UVB: 6 Topical drug therapy: 1 Oral Minocycline: 1 No treatment: 1	Mean duration until repigmentation: NB-UVB: 0.18 years Topical drug therapy 3.33 years Oral minocycline: 1 year No treatment: 8.33 years **Sustained benefit** After 3-13 months no depigmentation had occurred in those treated with NB-UVB **Author's conclusion**: No effective treatment is known for progressive

		Oral minocycline (4) 100~200 mg/day No treatment (Observation) (3)		macular hypomelanosis; however, NB-UVB phototherapy may be a useful treatment modality.

O.3.2.3 Case reports

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
Montero LC, *et al.* Progressive macular hypomelanosis, excellent response with narrow-band ultraviolet B phototherapy. *Photodermatol Photoimmunol Photomed* 2011; **27**:162-3. Case report, Spain F/up: 7 months **STRATA**	Hypopigmentated lesions on the trunk and limbs diagnosed as PMH 1 F 13 years	NB-UVB Initial dose of 0.2 J/cm^2 three times per week, reaching a maximum dose of 1.2 J/cm^2. Treatment was stopped after 25 sessions (cumulative dose of 18 J/cm^2).	**Disease improvement** Total repigmentation of lesions after 25 sessions **Sustained clearance: 7 months** Only a few lesions have reappeared, fewer and smaller than at the start of treatment	Prior to NB-UVB 1% topical clindamycin and 5% benzoyl peroxide were applied, although after 2 months, the lesions remained stable and a few new lesions had also appeared.
Wu X-G, *et al.* A case of progressive macular hypomelanosis successfully treated with benzoyl peroxide plus narrow-band UVB. *J Dermatolog Treat* 2010; **21**:367-8.	Multiple, ill-defined, non-scaly, 1.5 cm-sixed hypopigmented patches on the trunk, diagnosed as PMH 1 F	NB-UVB Twice a week for 12 sessions, initial dose 500 mJ/cm^2, with a 20% dose increase for each subsequent treatment.	**Disease improvement** Significant improvement	Prior to NB-UVB benzoyl peroxide 5% hydrogel was applied at night for 2 weeks, with slight improvement

Case report, China	24 years			
Chung YL, *et al.* A case of progressive macular hypomelanosis treated with narrow-band UVB 24. *J Eur Acad Dermatol Venereol* 2007; **21**:1007-9. Case report, South Korea	Multiple, ill-defined, non-scaly, 1–2 cm sized, hypopigmented patches on the trunk, diagnosed as PMH 1 F 25 years	NB-UVB Twice a week for 20 sessions, initial dose 100 mJ/cm^2, increased by 50mJ/cm^2.	**Disease improvement** Considerable	Prior to NB-UVB topical steroids had been applied for 2 months without any improvement

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O.4 Mastocytosis

O.4.1: Summary of included studies

O.4.1.1: Non-randomised comparative studies

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Brazzelli V, *et al.* Narrow-band UVB phototherapy and psoralen-ultraviolet A photochemotherapy in the treatment of cutaneous mastocytosis: a study in 20 patients. *Photodermatol Photoimmunol Photomed* 2016; **32**:238-46. Retrospective, observational analysis, Dermatology Department, Italy Includes all the patients reported in: Brazzelli V, *et al.* Indolent systemic mastocytosis treated with narrow-band UVB phototherapy: study of five cases. *J Eur Acad Dermatol Venereol* 2012; **26**:465-9.	n=20 mastocytosis (including cutaneous mastocytosis (CM) (10) and indolent systemic mastocytosis (ISM) with cutaneous features (10)) 6 F: 14 M	NB-UVB (10*: CM (2), ISM (8)) Three times a week on non-consecutive days. Initial dose 0.1 J/cm^2, 10%-20% dose increments according to skin type if there was no erythema. Increments from 5%-10% if there was minimal erythema, session was skipped and returned to the previous dose if intense erythema. PUVA (10: CM (8), ISM (2)) Same regimen. Patients received 8-MOP, at a dose of 0.5 mg/kg taken orally two hours before irradiation. Initial dose of 0.5 J/cm^2. Dose increments were applied according to the patient's skin type and the presence of cutaneous side effects. Dose increments ranging from 0.5 to 1 J/cm^2 were adopted if there was no or minimal erythema. In the presence of moderate-to-intense erythema, no increments were applied; instead, a session was skipped and returned to the previous dose.	**Disease-specific physician assessment: Mean change in VAS (SD)** NB-UVB: 5.8 (1.8) PUVA: 6.1 (1.0)	* These patients received UVB-NB, because they did not tolerate the intake of methoxsalen (8-methoxypsoralen, 8MOP), for the onset of a marked gastrointestinal symptomatology (nausea and dyspepsia). **Sustained clearance:** 7/20 (2 CM, 5 ISM) experienced a slight relapse between 4-6 months Mean number of sessions necessary to achieve a good control of cutaneous symptomatology (SD): NB-UVB: 40.9 (18.6) treatments PUVA: 20.7 (11.7) treatment (p = 0.0095) Mean cumulative irradiation doses (SD): NB-UVB: 50.9 (37.5) J/cm^2 PUVA: 100.3 (63.2) J/cm^2 (p = 0.047)

O.4.2: Narrative findings

O.4.2.1: Non-comparative studies

Stud	Population	Intervention	Outcomes	Comments & additional data not in usable format
Prignano F, *et al.* Cutaneous mastocytosis: successful treatment with narrowband ultraviolet B phototherapy. *Clin Exp Dermatol* 2010; **35**:914-5. Case series, Italy	n=7 cutaneous mastocytosis: urticaria pigmentosa 5 F: 2 M Mean age (range): 20.86 years (8-44) Skin type: III-IV	NB-UVB Initial dose based on MED, increased progressively by 20% each time. Each cycle consisted of 12 consecutive treatments and each cycle was repeated three times	**Disease improvement: reduction in pruritis** 7/7	**Author's conclusion:** The success of NB-UVB treatment is probably due to a reduction of pro-inflammatory cytokines and/or to its action on the membranes and/or enzymes of the mastocytes. NB-UVB could be a useful alternative to PUVA treatment, with a lower risk of side-effects.

O.4.2.2 Case reports

Stud	Population	Intervention	Outcomes	Comments & additional data not in usable format
Husain Z, *et al.* Management of poorly controlled indolent systemic mastocytosis using narrowband UVB phototherapy. *Cutis* 2017; **99**:E30-e3. Case report, USA	Indolent systemic mastocytosis 1 F 57 years	NB-UVB	**Disease improvement** Symptoms and the extent of cutaneous maculopapular lesions improved after 20 sessions, with even more dramatic results after 40 cycles of therapy	The patient's symptoms had remained stable for 9 years with a regimen of triamcinolone cream 0.1% twice daily, doxepin cream 5% daily as needed, and oral fexofenadine 180 mg once daily. The patient continues to use topical steroids and oral antihistamines and continuing to receive NB-UVB twice a week.

O.5 Morphoea/ Localised scleroderma

O.5.1: Summary of included studies

O.5.1.1 Systematic Reviews

Study	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Zwischenberger, *J Am Acad Dermatol* 2011; **65**:925-41.	Yes	Yes	PubMed, Ovid, and Google Scholar (inception- June 2009) (limited to English language only)	Yes	Yes	RCTs, nonrandomized uncontrolled trials, retrospective reviews, and case series

Comments: A systematic review of morphea treatments and therapeutic algorithm. Scleroderma-like conditions or secondary cutaneous sclerosis, including drug-induced scleroderma-like disorders and chronic graft-versus host disease were excluded. There was no consistent use of validated outcome measures across studies. Authors often reported outcomes as physical examination findings or subjective categories. The interventions were used as monotherapy unless otherwise noted. Limitations are publication bias; lack of adequately powered, controlled trials; and no validated outcome measures.

Summary: Sixteen studies on phototherapy, including 3 RCTs were included, but only one involved NB-UVB.

This RCT included 64 patients with localized scleroderma (plaque (50), linear (4), en coup de sabre (4), deep (2), generalized (3) and LS en coup de sabre with coexisting plaque morphea (1)).[128] NB-UVB was compared with low- and medium-dose UVA-1 (20 and 50 J/cm^2) using the Modified Skin Score (MSS) as primary outcome and the VAS, histology, and US-measured corneum (dermal) thickness as secondary outcomes. All patients showed a significant decrease in the MSS. Medium-dose UVA-1 had a significantly greater decrease compared with NB-UVB (MD-UVA1: -4.5, p<0.001, 95%CI 2.5-6.2; NB-UVB: -2.4, p<0.001, 95%CI 1.6-3.2); there were no differences between low-dose UVA-1 and NB-UVB (LD-UVA1: -2.6, p<0.001, 95%CI 1.6-3.4). The reduction of the score was accompanied by an improvement of the VAS for itching (NB-UVB: -0.5, p=0.16, 95%CI 0.2-1.3; MD-UVA1: -1.6, p<0.05, 95%CI 0.9-2.6; LD-UVA1: -0.7, p=0.15, 95%CI 0.2-1.6) and

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tightness (NB-UVB: -0.5, p<0.05, 95%CI 0.0-0.8; -1.8, *p*<0.05, 95%CI 1.6-3.6; LD-UVA1: -1.7, *p*<0.05, 95%CI 1.0-2.4).

Conclusion: Phototherapy, methotrexate/systemic corticosteroids, calcipotriene, and topical tacrolimus have the most evidence for efficacy in morphea. Treatment works best in inflammatory disease. NB-UVB is appropriate for progressive or widespread superficial dermal lesions. Disease activity, severity, progression, and depth should play a role in therapeutic decision making.

O.5.2: Narrative findings

O.5.2.1: Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Bedrikow RB, *et al.* Localized scleroderma: Assessment of the therapeutic response to phototherapy. *An Bras Dermatol* 2012; **87**:63-9. 2007, Brazil Some children included	n= 11 cutaneous scleroderma (17 lesions: cutaneous morphea form (8), linear form (5), generalised form (4)) 7 F: 4 M Age: 1-9 years (2), 10-19 years (5), 20-29 years (4) Skin: white (9), dark (2) Evolutive stage of lesion: inflammatory (8), stable (9)	NB-UVB (4: 8 lesions, 4 inflammatory same patient) Systemic PUVA (2: 3 lesions, 1 inflammatory) Topical PUVA (5: 6 lesions, 3 inflammatory) After an average of 10 sessions of phototherapy the lesions started to have some clinical improvement.	**Disease improvement: mean % improvement** Only reported for inflammatory lesions (1 patient for NB-UVB & systemic PUVA, 3 patients for topical PUVA) NB-UVB: 33.5% Systemic PUVA: 60% Topical PUVA: 69% In the stable lesions there was clinical improvement observed by lowering of the scores† by 48%	* Assigned according to age, clinical condition, location and extension of the dermatosis. †The lesions were assessed by clinical palpation, looking for resistance to pinching or skin hardening. This cutaneous folding was judged in a scale rating from zero (no sclerosis, normal folding), to three (severe sclerosis, no folding) as described by Rook *et al*., Arch Dermatol 1992; **128**:337-46. **Minor adverse events** No acute side effect like itch, erythema or burns was observed. **Author's conclusion:** The proposed treatment was effective for all lesions, regardless of the phototherapeutic modality employed. The improvement was observed in all treated skin lesions and confirmed by clinical evaluation and

				skin ultrasound.

O.5.2.2 Case reports

Study	Population	Intervention	Outcomes	Comments & additional data not in usable format
Newland K, *et al.* Success treatment of post-irradiation morphoea with acitretin and narrowband UVB. *Australas J Dermatol* 2012; **53**:136-8. Case report, Australia	Post-irradiation morphoea complication of radiotherapy treatment for breast cancer 1 F 43 years	Combination NB-UVB and acitretin NB-UVB three times a week and 10mg per day acitretin	**Disease improvement** Significant improvement in tenderness and the range of left arm movement after 2 months	No adverse side effects were reported. Treatment regimen continued with ongoing improvement in range of movement, tenderness and induration.
Brownell I *et al*. Familial linear scleroderma (en coup de sabre) responsive to antimalarials and narrowband ultraviolet B therapy. *Dermatol Online J* 2007; **13**:11. Case report, USA	Scleroderma 1 F 32 years	NB-UVB Three times a week, 24 weeks	**Disease improvement** Arrested progression of the disease, disease stable for 1 year, then progression	Prior treatment: oral doxycycline for 2 months with no improvement. The HCQ 200 mg/day with a decrease in erythema and slowing of encroachment of the orbital rim. *Once hair growth detectable oral colchicine stopped, NB-UVB reduced to two time a week
		Combination NB-UVB, colchicine and chloroquine Same regimen plus colchicine 0.6 mg and chloroquine 250 mg daily*	**Disease improvement** Initial hair loss slowly stabilized, new hair growth.	

O.6: Necrobiosis lipoidica like/granuloma annulare/giant cell granuloma

O.6.1: Narrative findings

O.6.1.1: Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Pavlovsky M, *et al.* NB-UVB phototherapy for generalized granuloma annulare. *Dermatol Ther* 2016; **29**:152-4. Retrospective, two centres (2010-2013), Israel	n=13 generalised granuloma annulare 11 F: 2 M Median age (range): 53 years (28-86)	NB-UVB 3 times a week Mean number of treatments: 35 Mean dose: 47.7 J/cm^2	**Disease improvement: improvement** Complete: 3 (23%) Partial: 4 (31%) Poor: 6 (46%)	**Author's conclusion:** NB-UVB is effective in a substantial portion of patients with generalized GA. To determine the true efficacy of this therapeutic modality, a prospective study comparing it to PUVA is warranted.

O.6.1.2 Case reports

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
Bala HR, *et al.* Two cases of generalised granuloma annulare successfully treated with acitretin and NB UVB therapy. *Australas J Dermatol* 2016; **57**:327-9.	Generalised granuloma annulare 1 F: 1 M Mean age: 65 years (62-68)	Combination NB-UVB and acitretin Acitretin was introduced at 10 mg daily, with concurrent NB-UVB therapy	**Disease improvement:** Clearance: 2	* Combination treatment was restarted with almost complete clearance in 2 months (1), acitretin monotherapy with almost complete clearance in 5 months (1)

Case reports, Australia F/up: 6 months		Cumulative total 13.9-15.5 J/cm^2 Mean number of sessions: 31.5 sessions (31-32)	**Sustained clearance (≥6 months)** 0 Mild granuloma annulare*	
Mikami E, *et al.* Generalized granuloma annulare successfully treated with narrowband ultraviolet B and anti-hepatitis C virus therapy. *J Dermatol* 2016; **43**:975-7. Case report, Japan	Generalised granuloma annulare and chronic HCV infection 1 M 63 years	Combination therapy NB-UVB and anti-hepatitis C virus therapy NB-UVB therapy 2–3 times/week with a dose escalation protocol.	**Disease improvement:** Eruption began to fade after six treatments. After 73 treatments (total irradiation dose, 22 J/ cm^2), the eruption was found to be dramatically improved.	
Kuroda K, *et al.* Narrow-band UVB for pretibial (Necrobiosis lipoidica-like) involvement of cutaneous sarcoidosis: A promising therapeutic option. *Eur J Dermatol* 2017; **27**:537-9. Case report, Japan	Sarcoidosis with pretibial macules Female 69 years	NB-UVB 0.3 J/cm^2 once a week	**Disease improvement:** Pretibial patches gradually regressed, resulting in pigmentation without any ulceration at 8 months.	No obvious adverse events caused by the NB-UVB therapy were observed during the treatment period
Muylaert BPB *et al.* Granuloma annulare treated with narrowband UVB phototherapy. *An Bras Dermatol* 2017; **92**:82-4. Case report, Brazil F/up: 2 years	Disseminated granuloma annulare 1 F 61 years Concurrent comorbidity:	NB-UVB twice a week for 6 months 48 sessions Cumulative dose 13,440 J/cm^2	**Disease improvement:** Good clinical improvement **Sustained clearance: 2 years** No recurrence	Refractory to intramuscular betamethasone, clobetasol cream under occlusion and cryotherapy

	diabetes			
Yong A, *et al.* Disseminated granuloma annulare responding to narrowband UVB phototherapy. *Photodermatol Photoimmunol Photomed* 2016; **32**:107-9. Case reports; Singapore F/up: 6 months	Disseminated granuloma annulare 2 M Mean age (range): 35.5 years (30-71) Concurrent treatment: 0.1% betamethasone cream twice daily*	NB-UVB Twice a week starting at 300 mJ/cm^2, to a maximum of 1100 or 1180 mJ/cm^2.	**Disease improvement:** Excellent response: 2 **Sustained clearance: ≥6 months** No recurrence **Reduction of other treatment** 0.025% betamethasone cream twice daily as maintenance treatment for 3 months and subsequently stopped when the lesions resolved completely	
Solano-López G, *et al.* Successful treatment of disseminated granuloma annulare with narrowband UV-B phototherapy. *Actas Dermosifiliogr* 2015; **106**:240-1. Case report, Spain Follow-up: 1 year	Disseminated granuloma annulare 1 F 80 years	NB-UVB Three times a week for 2.5 months, following dose escalation for skin phototype II In total 27 sessions were performed with a cumulative dose of 26.155 J/cm^2	**Disease improvement:** Excellent response, with affected BSA decreasing from 28% to almost 0% **Sustained clearance: 1 year** Free of lesions **Treatment tolerability** Good tolerance	Prior treatment, several cycles or oral prednisone and topical corticosteroids with no improvement. PUVA was contraindicated

Matsuki S, *et al.* [A case of granuloma annulare successfully treated with narrow-band UVB]. *Nishinihon J Dermatol* 2014; **76**:447-53. Case report, Japan In Japanese, done from abstract	Disseminated granuloma annulare 1 M 75 years Concordant comorbidities: diabetes mellitus (DM)	NB-UVB Twice a week	**Disease improvement:** When the accumulating total NB-UVB reached 20 J/cm^2, the lesions almost disappeared.	Prior treatment, oral corticosteroid therapy, facial papules almost disappeared, but type 2 DM gradually worsened. The annular eruptions expanded to the whole body when the amount of oral corticosteroids was decreased in order to better control DM.
Inui S, *et al.* Disseminated granuloma annulare responsive to narrowband ultraviolet B therapy 7. *J Am Acad Dermatol* 2005; **53**:533-4. Case report, Japan	Disseminated granuloma annulare 1 M 80 years Concordant comorbidities: diabetes mellitus	NB-UVB 400 mJ/cm^2 once a week. Total irradiation dose 15 J/cm^2	**Disease improvement:** Eruption almost disappeared, leaving slight erythema after 24 treatments **Sustained clearance: ≥6 months** No recurrence	
Takata T, *et al.* Regression of papular elastolytic giant cell granuloma using narrow-band UVB irradiation. *Dermatology* 2006; **212**:77-9. Case report, Japan	Papular elastolytic giant cell granuloma, on left hand and back 1 M 71 years	NB-UVB 100 mJ/cm^2 was given once to the papules the left hand and was repeated 4 times at 200 mJ/cm^2 /week. Back lesions regressed completely after direct irradiation with NB-UVB for a total of 1.4 J/cm^2 given over 6 weeks.	**Disease improvement:** Complete regression at both sites	

O.7: Notalgia paraesthetica

O.7.1: Narrative findings

O.7.1.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Pérez-Pérez L, *et al.* Notalgia paresthesica successfully treated with narrow-band UVB: report of five cases. *J Eur Acad Dermatol Venereol* 2010; **24**:730-2. Spain	n=5 notalgia paraesthetica 4 F: 1 M Mean age (range): 56.8 years (44-66)	NB-UVB 3 times a week. Mean number of sessions: 32.8	**Disease improvement: pruritus** Mean reduction in pruritus severity (range): 5.4 (3-8)	**Author's conclusion:** Given the benefits achieved, we stress the interest of NB-UVB as a safe and well tolerated alternative treatment for notalgia paraesthetica.

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O.8 Perforating dermatosis/Kyrle disease

O.8.1: Narrative findings

O.8.1.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Ohe S, *et al.* Treatment of acquired perforating dermatosis with narrowband ultraviolet B. *J Am Acad Dermatol* 2004; **50**:892-4. Japan	n=5 acquired perforating dermatosis 1 F: 4 M Mean age (range): 57.2 years (50-67) Concurrent comorbidities: diabetes mellitus (2), chronic renal failure (3)	NB-UVB 2 or 3 times a week. Initial dose 400 mJ/cm^2 increasing to a maximum of 1500 mJ/cm^2. Maintenance dose ranged from 700-1600 J/cm^2	**Disease improvement:** Significantly decreased the severity of pruritus and skin lesions	**Author's conclusion:** NB-UVB may be an option for the treatment of pruritus and persistent lesions in acquired perforating dermatosis.

O.8.1.2 Case reports

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
Sehgal VN, *et al.* Familial reactive perforating collagenosis in a child: response to narrow-band UVB. *Pediatr Dermatol* 2013; **30**:762-4.	n=1 familial reactive perforating collagenosis 1 M 8 years Skin type: V	NB-UVB Initial dose 700 mJ/cm^2, increment in dose of 20% as tolerated, 3 times a week. Cumulative dose: 38,150 mJ/cm^2	**Disease improvement** Lesions regressed completely, leaving atrophic scars and pigmentation after 25 exposures	

India **STRATA**				
Matsuzaki Y, *et al.* Successful treatment of Kyrle disease with narrowband ultraviolet B. *J Dermatol* 2017; **44**:721-2. Japan	n=1 Kyrle disease 1 F 36 years Comorbidities: chronic renal failure	NB-UVB Initial dose 300 mJ/cm^2, which finally extended to 1300 mJ/cm^2, once a week.	**Disease improvement** Significantly decreased the severity of pruritus and keratotic papules within a few months	
Mii S, *et al.* Acquired reactive perforating collagenosis successfully treated with narrow-band ultraviolet B. *Acta Derm Venereol* 2009; **89**:530-1. Japan	n=1 acquired perforating dermatosis* 1 F 45 years Comorbidities: diabetes mellitus complicated by diabetic nephropathy	NB-UVB Initial dose 0.8 J/cm^2, therapeutic dose was increased by 10% at the next two sessions, then continued at the same dose. 3 times a week. Cumulative dose: 18.96 J/cm^2	**Disease improvement** All the nodules disappeared completely after 20 Resolution of the keratotic plugs left behind scarring and pigmentation.	*Numerous dome-shaped nodules, which had a central umbilication containing firm keratotic plugs, and erythema was seen around the nodules No relapse in the 2-year follow-up period
Gambichler T, *et al.* Treatment of acquired perforating dermatosis with narrowband ultraviolet B. *J Am Acad Dermatol* 2005; **52**:363-4. Germany	n=1 acquired perforating dermatosis 1 F 47 years Skin type: I Comorbidities: hypercholesterolemia and atopic diathesis	NB-UVB 5 times a week for 2 weeks, then 3 times a week of 4 weeks. Initial dose: 0.1 J/cm^2; maximum dose 0.6 J/cm^2; cumulative dose: 12 J/cm^2	**Disease improvement** Significant reduction of skin lesions and relief of pruritus after 6 weeks	No relapse in the 3-month follow-up period
Bayramgürler D, *et al.* Narrow-band ultraviolet B phototherapy for acquired	n=1 acquired perforating dermatosis	Combination NB-UVB, oral hydroxyzine 50 mg/day and a topical emollient (50/50 liquid	**Disease improvement** Most of the lesions had	No relapse in the 3-month follow-up period

perforating dermatosis. *Australas J Dermatol* 2003; **44**:76-8. Turkey	1 F 55 years Comorbidities: diabetes mellitus, chronic renal failure	paraffin/soft paraffin) Whole-body phototherapy three times a week for 12 exposures, twice weekly for six exposures and once weekly for six exposures, initial dose 70% MED.	disappeared (nearly 75–80% improvement) and the pruritus was significantly reduced	
Satchell AC, *et al.* Reactive perforating collagenosis: A condition that may be underdiagnosed. *Australas J Dermatol* 2001; **42**:284-7. Australia	n=3 reactive perforating collagenosis 3 F Mean age (range): 68.7 years (58-75) Comorbidities: diabetes mellitus, hypertension, hypercholesterolaemia and ischaemic heart disease.	NB-UVB (2) 3 times a week	**Disease improvement: lesions resolved after 2 months** 1*/2 In the other patient there was some improvement in the first month, but this was short-lived and further treatment for 4 months was minimally effective	*repeated 6 months later when the condition recurred, this time for a period of 3 months (total dose 48 324 mJ)

O.9: Pityriasis Rosea

O.9.1: Summary of included studies

O.9.1.1 Systematic reviews

Study	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Wang, *Evid Based Complement Alternat Med* 2018; **2018**:6816981	Yes	Yes	PubMed, Embase, Cochrane Library, the China National Knowledge Infrastructure (CNKI) database, and the Chinese Scientific Journals Full-Text Database (CQVIP) (January 2006-March 2016)	Studies were assessed but results not reported	Yes	RCTs
Comments: A meta-analysis of the efficacy and safety of *indigo naturalis* (Qing Dai) extracted from the stems and leaves of *Baphicacanthus cusia* (Ness) Bremek, a traditional Chinese remedy in combination with NB-UVB for the treatment of pityriasis rosea. Outcomes looked at were the cure rate (rash reduced by >90%), effective rate (rash reduced by >60% and significant reduction in itching) and adverse reactions that mainly included erythema, thermalgia, itch, and diarrhoea, which match some of our outcomes. A study was considered eligible if it met the following criteria: (1) patients with rose rosea diagnostic criteria; (2) patients did not receive corticosteroids, immunosuppressants, antihistamines, or other drugs in 2 weeks; and (3) patients without other diseases. Exclusion criteria: (1) patients allergic to UV irradiation; (2)						

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pregnant and lactating women; (3) patients with severe heart, liver, kidney, gastrointestinal, and other diseases; and (4) rose rosea with infection. NB: The x axis on the forest plots have been incorrectly labelled for cure rate and effective rate but are correct for adverse reactions.

Funnel plot analysis showed an asymmetrical distribution of the samples which suggests that some of the test methodologies may have been of low quality and that the results may have been influenced by publication bias. However, the funnel plot in the paper is only for combination vs compound indigo naturalis.

Summary: A total of eight RCTs (including one 3-arm trial) with a combined study population of 688 patients were included. All studies were published in Chinese. Four studies used NB-UVB as the control, while five used compound indigo naturalis. The cure rate and the effective rate of the combination therapy was much higher than that of NB-UVB alone (the between-group difference was markedly significant (OR = 3.34, 95% CI: 2.04–5.48: P < 0.00001 and OR= 5.04, 95% CI: 2.65–9.57: P < 0.00001, respectively). No significant between-group difference was observed with respect to the incidence rate of adverse reactions (OR=1.12,95%CI:0.57–2.23: P= 0.74).

The cure rate and the effective rate of the combination were also higher than that of compound indigo naturalis alone (OR = 2.45, 95% CI: 1.63–3.68: P < 0.0001 and OR = 4.52, 95% CI: 2.60–7.87: P = 0.0001, respectively). The incidence rates of adverse reactions were reported for four trials, no significant difference with was observed between the two groups (OR = 2.45, 95% CI: 0.87–6.90: P = 0.09).

Conclusion: The regimen of compound indigo naturalis plus NB-UVB showed much better control of pityriasis rosea as compared to that achieved with use of compound indigo naturalis or NB-UVB alone in terms of cure rate or effective rate. However, no significant difference was observed between the two with respect to incidence of adverse effects. Further studies with large sample sizes are required to confirm our findings.

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O.9.2: Narrative findings

O.9.2.1: Case reports

Study	Population	Intervention	Outcomes	Comments & additional data not in usable format
Li A, *et al.* Recurrent pityriasis rosea: A case report. *Hum Vaccin Immunother* 2018; **14**:1024-6. Case report, China	Recurrent pityriasis rosea* 1 M 32 years	Combination NB-UVB, oral cetirizine and a topical steroid cream	**Disease improvement** 1st occurrence: symptomatic itching gradually disappeared, and the lesions resolved within 12 days. 2nd occurrence: rashes gradually vanished within 2 weeks.	* etiology may be related to either vaccine-induced stimulation of the immune system, or some rare vaccine component

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O.10: Seborrhoeic dermatitis

O.10.1 Narrative findings

O.10.1.1 Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Pirkhammer D, *et al.* Narrow-band ultraviolet B (ATL-01) phototherapy is an effective and safe treatment option for patients with severe seborrhoeic dermatitis. *Br J Dermatol* 2000; **143**:964-8. Prospective study, Austria	n=18 severe seborrhoeic dermatitis 6 F: 12 M Median age (range): 36 years (18-63) Skin type: I (1), II (8), III (9)	NB-UVB (TL-01) 3 times a week until complete clearance up to a maximum of 8 weeks Median number of exposures (range): 23 (9-24) Median cumulative dose (range): 9.8 J/cm^2 (2.9-22.2)	**Disease improvement: clearance** Complete: 6 Marked improvement: 12	Attrition: 6/18 discontinued the study prematurely Relapses occurred in all patients after a median of 21 days (range 12-40). No side-effects of treatment were observed except occasional episodes of a moderate erythemal response. **Author's conclusion:** NB-UVB phototherapy appears to be a very effective and safe treatment option for patients with severe seborrhoeic dermatitis.

O.11: Other skin diseases excluding photodermatoses

O.11.1: Narrative findings

O.11.1.1: Case reports

Case reports only	Number of cases	Result		Reference
Acne (pregnancy)	1	Successful	Most of the inflammatory papules and pustules on the face and neck resolved, leaving post-inflammatory hyperpigmentation. Inflammatory nodules, papules, and pustules on the trunk showed improvement as well, but to a lesser degree than lesions on the face and neck.	Zeichner JA. *Arch Dermatol* 2011; **147**:537-9.
Burn induced leukoderma	1	Successful	100% repigmentation with excellent colour match was achieved after 7 months. Sustained for 6 months after discontinuing treatment.	Hinojosa JA, *Br J Dermatol* 2018; **178**:e327.
Cutaneous plasmacytosis	1	Successful	The skin lesions began to respond after 40 phototherapy sessions over 5 months (43.7 J/cm^2). Only slight induration and pigmentation persisted after 179 sessions over 27 months (in total 201.8 J/cm^2).	Yanaba K, *J Dermatol* 2016; **43**:229-30.
Eosinophilic pustular folliculitis	4	Successful	NB-UVB (3), combination NB-UVB, indomethacin & dapsone (1)	Kuwano Y, *Int J Dermatol* 2006; **45**:1265-7; Lim HL, *Photodermatol Photoimmunol Photomed* 2012; **28**:219-21; Schmieder A, *J Am Acad Dermatol* 2013; **69**:e312-4; Erturan I, *Turk Klin Dermatol* 2012; **22**:191-4.
Erythema annulare centrifugum	1	Successful	After four weeks of treatment the skin lesions had cleared nearly completely without any side effects.	Reuter J, *Hautarzt* 2007; **58**:146-8.
Erythema dyschromicum perstans	3	Successful	After 12 sessions of NB-UVB, an improvement of the erythematous violaceous component was achieved. However, there was persistence of a slight greyish halo, although a reduction of erythematous borders was achieved. The grey halo lasted for six months after the last NB-UVB session (2); moderate improvement (1).	Tlougan BE, *Dermatol Online J* 2010; **16**:17; Fabbrocini G, *Acta Dermatovenerol Croat* 2015; **23**:63-5.
Hailey-Hailey disease	3	Successful	NB-UVB: improvement 2-5 months (2); Combination NB-UVB & oral alitretinoin: favourable	Hamada T, *Acta Derm Venereol* 2013; **93**:110-1; Mizuno K, *Dermatol*

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			response within 2-3 weeks, after 6 weeks, maintenance therapy of 30 mg/day oral alitretinoin	*Ther* 2014; **27**:233-5; Vanderbeck KA, *Dermatol Rep* 2014; **6**:21-3.
Histiocytosis	4 Langerhams cell (2 children)	3 successful	NB-UVB therapy effective for the treatment of superficial cutaneous lesions (3), but not tumoral lesions of LCH (1).	Imafuku S, *Br J Dermatol* 2007; **157**:1277-9; Do JE, *Clin Exp Dermatol* 2009; **34**:e280-1; Aihara M, *J Dermatol* 2011; **38**:151-4; Ness MJ, *Pediatr Dermatol* 2014; **31**:e10-2.
	1 multiple cutaneous reticulohistiocytosis	Slight improvement		Seo P-S, *Korean J Dermatol* 2006; **44**:55-8.
	2 indeterminate cell (1 child)	Successful	Most lesions resolved over a 6-month course (approximately 60 sessions) of treatment leaving mildly atrophic scars (1); over the course of 30 treatments, most skin lesions flattened, leaving only hyperpigmentation, maintenance using home-phototherapy unit (1).	Bard S, *Pediatr Dermatol* 2011; **28**:524-7; Logemann N, *Dermatol Online J* 2013; **19**:20031.
ILVEN + psoriasis	1	Successful	Combination NB-UVB & acitretin: 8 weeks, good response was obtained after this treatment for psoriasis and also ILVEN. After 10 months, relapse occurred in psoriasis and ILVEN lesions and etanercept treatment was initiated. ILVEN lesions and its pruritus did not improve.	Özdemir M, *J Eur Acad Dermatol Venereol* 2009; **23**:1453-4.
Impetigo herpetiformis (pregnancy)	1	Successful	Combination NB-UVB & oral prednisolone	Bozdag K, *Cutan Ocul Toxicol* 2012; **31**:67-9.
Keratosis lichenoides chronica	2 (2 children)	Successful	NB-UVB: most of the papules had flattened after 1 month (2).	Tomb R, *Ann Dermatol Venereol* 2008; **135**:835-8.
Lichen amyloidosis	4	Successful	NB-UVB: over a 5-month period resulted in a marked improvement of pruritus and clearing of the amyloid deposits (2); Combination NB-UVB, topical corticosteroids & oral antihistamine (1); Combination NB-UCVB & ciclosporin: Oral ciclosporin for 4 months then NB-UVB started, ciclosporin tapered after 5.5 months, then discontinued after 1 month, NB-UVB continued. After 8 months nearly complete regression, maintenance NB-UVB therapy (1)	Parsi K, *Int J Dermatol* 2004; **43**:925-8; Kang MJ, *J Dermatolog Treat* 2009; **20**:368-70; Oiso N, *Clin Exp Dermatol* 2009; **34**:e833-6; Alonso-González J, *Actas Dermosifiliogr* 2013; **104**:527-9.
Lichen nitidus	8 (4 children)	Successful	NB-UVB: 10 sessions effectively attenuated the	Park J-H, *J Am Acad Dermatol* 2006;

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			pruritus and size of individual lesions (1); skin lesions completely regressed after 25 sessions (1); skin lesions completely regressed after 41 sessions, recurrence was not observed during a 6-month follow-up period(1); skin lesions, except those on the lower legs, almost cleared after 28 sessions and remained improved 11 months after cessation of therapy (1), favourable response (2); Combination NB-UVB & topical steroid ointment, almost complete resolution after 18 and 20 treatments, respectively (2)	**54**:545-6; Do MO, *J Korean Med Sci* 2007; **22**:163-6; Aboín-González S, *Actas Dermosifiliogr* 2010; **101**:179-80; Nakamizo S, *Eur J Dermatol* 2010; **20**:816-7; Bilgili SG, *Photodermatol Photoimmunol Photomed* 2013; **29**:215-7.
Lichen sclerosus	1	Successful	Almost complete resolution of pruritus after 3 sessions. Topical therapy was discontinued. Plaques stopped expanding, and after 1 month they were less discoloured and significantly less indurated. Within 3 months, the abdominal plaques had nearly cleared, and the other affected areas continued to improve, with loss of active violaceous changes at their periphery. The frequency of NB-UVB was decreased to twice a week and then discontinued. Three months later the patient had no relapse of pruritus or enlargement of existing sclerotic areas.	Colbert RL, *Arch Dermatol* 2007; **143**:19-20.
Netherton's syndrome	2 (2 children)	Successful	NB-UVB marked improvement. **However, patient was lost to follow-up, and had continued to have sessions without medical supervision (cumulative dose 240 J over 3 years) developed multiple pigmented lesions and nevi** (1); Combination NB-UVB & oral corticosteroids, prednisone 20 mg (0.4 mg/kg body weight) daily was tapered over 2 weeks while the NB-UVB dose was escalated. A significant reduction of erythema and scaling was noted at the end of the initial 3-week treatment course. Able to sustain the beneficial treatment effect with home-phototherapy unit (1).	Kaminska EC, *Photodermatol Photoimmunol Photomed* 2012; **28**:162-4; Moutran R, *Int J Dermatol* 2015; **54**:e271-3.
Papuloerythroderma	4	Successful	NB-UVB, eruptions virtually disappeared after approximately 10 treatments (3); Combination NB-UVB & topical steroid, after 6	Fujimura T, *J Dermatol* 2009; **36**:228-31; Yokoyama Y, *Skin Res* 2010; **9**:141-6.

			weeks most of the skin lesions resolved leaving small papules with mild infiltration, maintenance with topical steroid, no exacerbation of skin lesions for 3 years (1);	
Pigmented purpuric dermatosis/ Schamberg's disease	7 (4 children)	Successful	NB-UVB: lesions cleared after 10 treatments, no recurrence in 6 months (1); lesions cleared after 13 treatments, no recurrence in 2 months (1); lesions cleared after 20 treatments, no recurrence in 4 months (1); lesions cleared after 24 treatments, no recurrence in 4 months (1); rash improved considerably after 24 treatments, no recurrence 1 year (1); complete resolution after 30 treatments, still lesion free after 8-12 months (2)	Gudi VS, *Clin Exp Dermatol* 2004; **29**:683-4; Kocaturk E, *Photodermatol Photoimmunol Photomed* 2009; **25**:55-6; Can B, *Photodermatol Photoimmunol Photomed* 2011; **27**:216-8; Karadag AS, *Photodermatol Photoimmunol Photomed* 2013; **29**:97-9; Verma P. *Pediatr Dermatol* 2013; **30**:e291-2.
Pityriasis rubra pilaris	6 (3 children)	5 successful	NB-UVB: Decrease of BSA involvement after 12 treatments, then painful, large, 1- to 2-cm, tense, lesional blisters developed, exclusively at the borders of the involved plaques on 14th treatment. NB-UVB stopped, restated 1 week later at 50% last treatment dose, but stopped after 12 treatments when persistent tenderness of the plaques began to develop (1); complete resolution within 4 months (1); complete resolution within 1 year (1); Combination NB-UVB & emollients (hydrocortisone cream on face, calcipotriene on body) 90% improvement after 19 sessions, no recurrence after 18 months (1); Combination NB-UVB & acitretin, dramatic improvement after 9 treatments, acitretin dose reduced after 15 treatments, rash resolved after 25 treatments, condition flared within 2 weeks of discontinuing NB-UVB, responded rapidly once restarted (1); Combination NB-UVB & acitretin improvement (1);	Khoo L, *J Am Acad Dermatol* 1999; **41**:803-4; Kirby B, *Br J Dermatol* 2000; **142**:376-7; Booth AV, *Dermatol Online J* 2005; **11**:9; Betto P, *G Ital Dermatol Venereol* 2008; **143**:271-3; Vergilis-Kalner IJ, *J Drugs Dermatol* 2009; **8**:270-3; Massa A, *Indian J Dermatol Venereol Leprol* 2015; **81**:435.
Poikiloderma vasculare atrophicans	2		NB-UVB: continuous brightening of the affected skin as well as vanishing of the erythematous patches was observed after 6 months to 1 year (2)	Nakai K, *J Eur Acad Dermatol Venereol* 2009; **23**:844-6.
Primary localized cutaneous amyloidosis	1	Successful	Combination NB-UVB & topical tacrolimus ointment 0.1%: significant improvement after 20 treatments	Kalkan G, *J Pak Med Assoc* 2014; **64**:579-82.

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			remission of pruritus and flattening of the papules especially on the back and upper limbs were observed and also the amount of the cutaneous hyperpigmentation decreased (1)	
Pruritis folliculitis (pregnancy)	1	Successful	NB-UVB: dramatic improvement after 10 treatments, clear after 20 treatments, remained clear for remainder of pregnancy	Reed J, *Br J Dermatol* 1999; **141**:177-9.
Pruritic papular eruption in HIV	4	Successful	NB-UVB: 30 sessions (2); 83 sessions (1); 100 sessions (1)	Aquilina C, *Nouv Dermatol* 1998; **17**:105-7; **21**:1102-4; Bellavista S, *Dermatol Ther* 2013; **26**:173-5.
Pruritic papular eruption in radiotherapy (with breast cancer)	1	Successful	NB-UVB: 35 sessions, free of lesions for 1 year	García-donoso C, *J Eur Acad Dermatol Venereol* 2007.
Pseudoainhum (with psoriasis)	1 (1 child)	Successful	Combination: NB-UVB (low-dose) & topical pimecrolimus cream 1%, 19 sessions, lesions completely cleared, no recurrence in 12 months.	Ahn SJ, *J Eur Acad Dermatol Venereol* 2006; **20**:1332-4.
Resistant psychogenic excoriation	7	4 successful	A clinical improvement 475% was achieved in four patients. The clinical improvement scores decreased by at least 50% in five (71.4%) subjects. Decreases in the mean scores on the VAS were significant for the presence of skin sensations (from 8.29 (1.89) to 2.71 (2.43) p = 0.018). 2/4 relapsed at 3 & 7 months.	Ozden MG, *Photodermatol Photoimmunol Photomed* 2010; **26**:162-4.
Scleredema of buschke	3	Successful	NB-UVB: Marked improvement after 10 sessions, total 54 sessions marked improvement in range of shoulder motion and softening of the lesions. Maintained good state for 14 months. (1) Marked improvement after 10 sessions (1); Successfully treated (1)	Xiao T, *J Dermatol* 2007; **34**:270-2; Yoshimura J, *Mod Rheumatol* 2016; **26**:302-6.
Subcorneal pustular dermatosis	3	Successful	Combination NB-UVB & topical corticosteroids (clobetasol): Complete remission after 42 sessions, no relapse in 24 months follow-up (1). Combination NB-UVB, minocycline, topical steroids & prednisolone: much improved after 31 sessions, prednisolone was stopped, condition controlled for 5 months with minocycline monotherapy (1). Combination NB-UVB & sulphamethoxypyridazine:	Cameron H, *Br J Dermatol* 1997; **137**:150-1; Orton DI, *Br J Dermatol* 1997; **137**:149-61; Bordignon M, *Am J Clin Dermatol* 2008; **9**:51-5

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			53 sessions, dramatic improvement and 95% clearance of rash. Remission 6 weeks. Second course NB-UVB monotherapy, same response. Remission 2 months (1).	

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Appendix P: Photodermatosis

P.1: Summary of included studies

P.1.1: Systematic reviews

STUDY	The review addresses an appropriate and clearly focused question that is relevant to the guideline review question (Yes/No)	The review collects the type of studies you consider relevant to the guideline review question (Yes/No)	The literature search is sufficiently rigorous to identify all the relevant studies (Yes/No)	Study quality is assessed and reported (Yes/No)	An adequate description of the methodology used is included, and the methods used are appropriate to the question (Yes/No)	What types of studies are included in the review? (RCTs/cohort studies/mixed)
Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Yes	Yes	Yes (January 1966-June 2004 PubMed)	Yes (GRADE)	Yes	RCTs, open prospective studies and retrospective observations
Comments: Systematic review on the therapeutic use of NB-UVB for skin disorders other than psoriasis. Open prospective studies with <5 patients and retrospective observations on less than 15 patients (per diagnosis) were excluded. Reports on non-conventional NB-UVB such as NB-UVB microphototherapy or similar UV sources such as 308 nm UVB excimer laser therapy were not included. The quality of the evidence was moderate to very low. **Summary:** Two studies were identified (n=45), including 1 RCT[158] SEE BELOW and 1 open prospective study.[164] SEE BELOW **Conclusion:** NB-UVB seems to be effective in patients with polymorphic light eruption and actinic prurigo.						

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P.1.2: Randomised controlled trials

Study/ design	Population	Intervention & Comparator	Outcomes	Comments & additional data not in usable format
Bilsland D, *et al. Br J Dermatol* 1993; **129**:708-12. RCT, single centre (March-October 1990), UK	n=25 severe polymorphic light eruption (PLE) NB-UVB 12 F; 1 M Mean age (range): 42 years (25-62) PUVA 12 F: Mean age (range): 38 years (22-50) Exclusion criteria: <18 years old, pregnancy	Prophylactic phototherapy NB-UVB (13) TL-01 UVB with oral placebo, three times a week for 5 weeks during March and April. Initial dose 70% of the determined MPD or MED. Increased by 20% incremental steps, based on the previous dose. Adjustments to this dose schedule were made when clinically indicated. PUVA (12) Photochemotherapy with oral psoralen, same regimen F/up: 17 weeks (May-September) patients regularly assessed, final f/up 6 months (October)	**Change in sun tolerance: patients felt that the therapy had enabled them to spend more time outdoors** 6 months NB-UVB: 10 PUVA: 9 **Minor adverse events: PLE induced** 5 weeks NB-UVB: 8 PUVA: 6	Attrition: 2, one from each arm during initial f/up; a further 5, NB-UVB (2), PUVA (3) by 6 months PLE episodes during 17 week f/up: NB-UVB: 69 PUVA: 66 The severity score in any one week was, on average, between 0 and 1.76 units higher on PUVA than on NB-UVB

P.2: Narrative findings

P.2.1: Non-comparative studies

Study/ design	Population	Intervention	Outcomes	Comments & additional data not in usable format
Combalia A, *et al.* Successful Short Desensitization Treatment Protocol with Narrowband UVB Phototherapy (TL-01) in Polymorphic Light Eruption. *Actas Dermosifiliogr* 2017; **108**:752-7. Retrospective, open planned and non-randomized study (2014-5), Spain F/up: After the end of the prophylactic phototherapy treatment and at the beginning of autumn	n= 15 severe polymorphic light eruption (24 prophylactic phototherapy courses) 11 F: 4 M Mean age (range): 42.4 years (16-62) Month: March (8.3%), April (50%), May (33.3%), June (8.3%)* Inclusion criteria: consecutive subjects ≥18 years which reported benefit with natural hardening and who accepted the 2 days per week regime during one month period	NB-UVB Prophylactic phototherapy protocol, based on a one-month-treatment, administered twice a week, once a year in Spring 2014 (9) & 2015 (15). Initial dose was 0.15 J/cm^2. This was followed by a 20% incremental dosage, twice a week, during four weeks. The total number of sessions was eight and the final dose achieved was 0.53 J/cm^2. Subjects were told to keep exposing themselves to sunlight through over the summer after the prophylactic phototherapy protocol.	**Sustained benefit: over the summer** 21/24 9, who received 2 prophylactic phototherapy treatment courses, were complete responders both in 2014 & 2015.	***No differences ($p > 0.05$) between the sustained response to the prophylactic phototherapy and the month in which photo hardening was performed. No differences ($p > 0.05$) between the maintained response to photo-hardening and the use of extra treatments after the prophylactic phototherapy: oral beta-carotene (11 courses), antihistaminic drugs (2 courses). **Author's conclusion:** The effect of hardening using our standard protocol was maintained in the vast majority of subjects, obtaining a good benefit with no PLE episodes during all the summer.
Jury CS, *et al.* Narrowband ultraviolet B (UVB) phototherapy in children. *Clin Exp Dermatol* 2006; **31**:196-9.	n=77* children treated with NB-UVB for a skin condition, including 5 with photodermatoses: **polymorphic light eruption (3)** and hydroa	NB-UVB A MED was established in 42% (32/77) of patients, and these received a starting dose of 50% of their MED; the rest received an empirical starting dose.	**Disease improvement: clinical response** Polymorphic light eruption (3) One achieved remission for the rest of the summer†	*psoriasis (35), atopic eczema (25), alopecia areata (6) acne (2), pityriasis lichenoides chronica (2), pityriasis rubra pilaris (1), non-bullous ichthyosiform erythroderma (1)

Retrospective review, two hospitals (1996-2002), UK **STRATA**	vacciniforme (2: see below) 42 F: 35 M Median age (range): 12 years (4-16) Inclusion criteria: All children aged 16 years or under at the time of treatment	Patients attending for treatment of photodermatoses were generally treated with 10% increment each treatment. Prophylactic phototherapy courses for the photodermatoses were shorter compared to other dermatoses; median number of treatments per course for polymorphic light eruption 13.5 (range 10–15)		†Attrition: 2, response not recorded **Author's conclusion**: NB-UVB phototherapy is a useful and well-tolerated treatment for children with severe or intractable inflammatory skin disease. However, there is uncertainty about the carcinogenic potential of NB-UVB and therefore it should continue to be used with caution and for carefully selected children.
Dummer R, *et al.* Clinical and therapeutic aspects of polymorphous light eruption. *Dermatology* 2003; **207**:93-5. Prospective, single centre, Switzerland	n=25 polymorphous light eruption (PLE) 22 F: 3 M Mean age (range): 44.8 years (18-74) Skin type: I (4), II (5), III (14), IV (2) PLE type; papular (11), papulovesicular (11), plaque (2), erythema multiforme-like (1)	Photo-hardening with: Combined UVA + UVB radiation (15) NB-UVB (10)* Systemic PUVA (2) Looks like 2 of the 5 patients that failed to respond to combination UVA/UVB then had combination PUVA but it could be 2 of the patients who relapsed it's not clear. This one hasn't been forest plotted as some patients have received more than one treatment.	**Disease improvement: Excellent (no more relapses and disappearance of patients' complaints after treatment); Good (reduction in frequency of relapses and clinical symptoms): Improved (relapses but subjectively reduced clinical symptoms during outdoor activities)** Combination UVA/UVB (15): Excellent: 4 Good: 2 Improved: 4 NB-UVB (10) Excellent: 6 Improved: 2 Systemic PUVA (2): Excellent: 1 Good: 1	*Patients who did not respond adequately to UVA + UVB therapy were treated with NB-UVB. Patients were successfully treated with PUVA after combined UVA + UVB and NB-UVB treatments were unsatisfactory. **Sustained benefit** Relapse rate Combination UVA/UVB: 9 NB-UVB: 4 Systemic PUVA: 1 **Author's conclusion:** NB-UVB is far more efficient than combination UVA/UVB and probably achieves a similar efficacy as PUVA therapy. Therefore, NB-UVB should be the first choice in the photo-hardening of PLE patients.

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Ma L, *et al.* Evaluation of narrow band ultraviolet B phototherapy in the treatment of chronic actinic dermatitis in Chinese patients. *Dermatol Ther* 2017; **30.** Case series, dermatology department (January 2013-June 2015), China	n=19 chronic actinic dermatitis 19 M Mean age (SD): 57.0 (12.5) years Skin type: IV (19) Sensitivity: UVA only (3), UVB only(3), UVA & UVB (13)	NB-UVB Started at 30% to 50% of the normal initial dose according to their sensitivity to UVB in the Spring. Treatments given 3 times weekly with incremental dose of 10% and maintenance therapy was given twice weekly for 3-4 weeks. The mean initial, endpoint, and cumulative dose of NB-UVB were 0.08, 0.33, and 6.0 J/cm^2, respectively; total no. of treatments 27 +/- 9 times All patients received a single muscle injection of 1 ml compound betamethasone suspension containing 5 mg of betamethasone dipropionate and 2 mg of betamethasone sodium phosphate before the therapy to avoid aggravation due to UV radiation.	**Change in quality of life: DLQI** Mean baseline (SD): 11.4 (2) Mean post-treatment (SD): 2.3 (1.0) *P*<0.01 **Change in sun tolerance: response rate (of normal and improved post phototherapy MED at 12 months) compared to baseline MED*** UVB sensitivity: 87.5% UVA sensitivity: 75% **Reduction in other therapy: immunosuppressives**11 Pre-treatment: 12 Post-treatment: 1 **Reduction in other therapy: antihistamines** 5 Pre-treatment: 19 Post-treatment: 14	Slightly confusing presentation of results. The authors have presented UVA and UVB sensitivity separately even though 13 patients have both UVA and UVB sensitivity. *The phototest response after treatment is as follows: UVA+UVB sensitivity (13): 5 normalised, 8 improved in either UVA and/or UVB UVA only sensitivity (3): 2 normalised, 2 improved UVB only sensitivity (3): 2 normalised, 1 deteriorated. **Author's conclusion**: Prophylactic NB- UVB phototherapy is effective and safe in treatment of CAD in Chinese patients with Fitzpatrick skin phototype IV.
Khaled A, *et al.* Chronic actinic dermatitis: two patients with successful management using narrowband ultraviolet B phototherapy with	n=2 chronic actinic dermatitis (CAD) 2 M Mean age (range): 68 years (62-74)	NB-UVB and systemic steroids Three times weekly incremental regimen of NB-UVB phototherapy coupled to a 3 month-course of systemic	**Disease improvement:** Yes	Attrition: lost to follow up after 1 month (1), lost to follow up after 1 year for 3 months (then presented with severe relapse) (1)

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systemic steroids. *Therapie* 2011; **66**:453-7. Case reports, Tunisia	Skin type: IV (1), V (1)	steroids (1mg/Kg/day) Initial dose: 70% MED Increment: 20% Maintenance sessions weekly for 3 months, every other week for 3 months, then every three weeks until lost to follow-up	**Sustained clearance: 1 year** 1/1*	**Author's conclusion:** NB-UVB with steroids seems to be effective for the management of CAD with a good short-term safety profile.
Collins P, *et al.* Narrow-band UVB (TL-01) phototherapy: an effective preventative treatment for the photodermatoses. *Br J Dermatol* 1995; **132**:956-63. Open study, UK F/up: October same year Half children, 3 under 18 years	actinic prurigo (6) (total photodermatoses n=20*) 4 F: 2 M Mean age (range): 31.6 years (15-48) Skin type: I (5), II (1)	NB-UVB 'Hardening' course March/April 1992 or 1993 Initial dose: 70% MED Increment: 20% Outpatients: 3x/weeks x 5 weeks Inpatients: 5x/week x 2 weeks Patients were encouraged to seek exposure to sunlight as much us was reasonably possible during subsequent months. in order to maintain phototherapy benefit.	**Disease improvement: daily tolerance to direct sunlight** All improved. 2 patients' sun tolerance increased from 10-30 minutes to 3-4 hours for 4 months 4 patients' sun tolerance increased from 30 minutes-1 hour to all day for 4 months **Sustained benefit:** 4 months: 6	*hydroa vacciniforme (4), idiopathic solar urticaria (1), amiodarone-induced photosensitivity (1) and a range of cutaneous porphyrias (8) **Author's conclusion**: We now routinely consider NB-UVB phototherapy for problem photodermatoses.
Sivaramakrishnan M, *et al.* Narrowband ultraviolet B phototherapy in erythropoietic protoporphyria: case series. *Br J Dermatol* 2014; **170**:987-8. Retrospective case series, (1991-2011), UK	n= 12 erythropoietic protoporphyria (80 annual courses) 9 F: 3 M Mean age: 28 years Skin type: I (majority)	NB-UVB Initial dose: 50–70% of MED Increment: 20% then reduced to 10%, with usually up to 15 treatments. Mean number of total treatments per course 8-15 and the mean final dose per course was between 0.19 and 0.92 J cm^2	**Disease improvement:*** Good benefit: 7 No benefit: 4 Unknown: 1 **Sustained benefit: ≥6 months** 3 felt it lasted for 6-9 months	***** increase in duration of tolerance to sunlight up to 1.5 hours after NB-UVB compared with a few minutes prior to treatment (2); better tolerance of sunlight abroad (3). **Author's conclusion:** NB-UVB phototherapy was beneficial and well tolerated in

Some children, mean age of onset was 2.4 years		Two received NB-UVB phototherapy at home.	**Treatment tolerability** Well-tolerated	our group of patients with EPP. Home phototherapy was also found to be effective and well tolerated in our patients**.**
Collins P, *et al.* Narrow-band UVB (TL-01) phototherapy: an effective preventative treatment for the photodermatoses. *Br J Dermatol* 1995; **132**:956-63. Open study, UK F/up: October same year Mostly children, 5 under 18 years	erythropoietic protoporphyria (6) (total photodermatoses n=20*) 3 F: 3 M Mean age (range): 14.83 years (12-21) Skin type: I (3), II (3)	NB-UVB 'Hardening' course March/April 1992 or 1993 Initial dose: 70% MED Increment: 20% Outpatients: 3x/weeks x 5 weeks Inpatients: 5x/week x 2 weeks Patients were encouraged to seek exposure to sunlight as much us was reasonably possible during subsequent months. in order to maintain phototherapy benefit.	**Disease improvement: daily tolerance of direct sunlight** All improved. 2 patients' sun tolerance increased from <15 minutes to 1 hour for 4 weeks 3 patients' sun tolerance increased from < 15 minutes to 2 hours for 4 months 1 patient's sun tolerance increased from 30 minutes to all day: 1 **Sustained benefit:** 4 weeks: 2 4 months: 4	* actinic prurigo (6), hydroa vacciniforme (4), idiopathic solar urticaria (1), amiodarone-induced photosensitivity (1) and other cutaneous porphyrias (2) **Author's conclusion**: We now routinely consider NB-UVB phototherapy for problem photodermatoses.
Jury CS, *et al.* Narrowband ultraviolet B (UVB) phototherapy in children. *Clin Exp Dermatol* 2006; **31**:196-9. Retrospective review, two hospitals (1996-2002), UK **STRATA**	n=77* children treated with NB-UVB for a skin condition, including 5 with photodermatoses: polymorphic light eruption (3: see above) and **hydroa vacciniforme (2)**) 42 F: 35 M Median age (range): 12 years (4-16) Inclusion criteria: All children aged 16 years or under at the time of treatment	NB-UVB A MED was established in 42% (32/77) of patients, and these received a starting dose of 50% of their MED; the rest received an empirical starting dose. Patients attending for treatment of photodermatoses were generally treated with 10% increment each treatment. Prophylactic phototherapy courses for the photodermatoses were shorter; median number of treatments	**Disease improvement: clinical response** Hydroa vacciniforme (2) Disappointing. Both appeared to respond well initially but disease severity returned to that seen before treatment within 3–6 weeks of finishing, with no sustained 'hardening' effect demonstrable. Significant distressing flares of their disease were provoked by treatment.	*psoriasis (35), atopic eczema (25), alopecia areata (6) acne (2), pityriasis lichenoides chronica (2), pityriasis rubra pilaris (1), non-bullous ichthyosiform erythroderma (1) **Author's conclusion**: No comment made specifically for hydroa vacciniforme.

		per course for hydroa vacciniforme was 14.5 (range 9–30).		
Gupta G, *et al.* Hydroa vacciniforme: A clinical and follow-up study of 17 cases. *J Am Acad Dermatol* 2000; **42**:208-13. Retrospective study, (1973-1997), UK Mean age at f/up (range): 20.8 years (6-46) **STRATA**	n=17 hydroa vacciniforme 8 F: 9 M Mean age (range): 7.9 years (1-16)	NB-UVB (5) Daily treatments for 10 treatments in early spring.	**Disease improvement:** Good control: 2 Moderately helpful: 1 Not helpful: 2	**Author's conclusion:** 60% of patients treated with prophylactic TL-01 phototherapy found it beneficial.
Collins P, *et al.* Narrow-band UVB (TL-01) phototherapy: an effective preventative treatment for the photodermatoses. *Br J Dermatol* 1995; **132**:956-63. Open study, UK F/up; October same year Mostly children, 3 under 18 years	4 hydroa vacciniforme (n=20 total photodermatoses*) 1 F: 3 M Mean age (range): 14.75 years (8-28)	NB-UVB 'Hardening' course March/April 1992 or 1993 Initial dose: 70% MED Increment: 20% Outpatients: 3x/weeks x 5 weeks Inpatients: 5x/week x 2 weeks Patients were encouraged to seek exposure to sunlight as much us was reasonably possible during subsequent months in order to maintain phototherapy benefit.	**Disease improvement: daily tolerance of direct sunlight** 1 patient's sun tolerance increased from < 1 hour to 3-4 hours for 4 months 1 patient's sun tolerance increased from <1 hour to 6 hours for 4 months No response: 2 **Sustained benefit** 4 months: 2	*actinic prurigo (6), idiopathic solar urticaria (1), amiodarone-induced photosensitivity (1) and a range of cutaneous porphyrias (8) **Author's conclusion**: We now routinely consider NB-UVB phototherapy for problem photodermatoses.

Calzavara-Pinton P, *et al.* Narrowband ultraviolet B phototherapy is a suitable treatment option for solar urticaria. *J Am Acad Dermatol* 2012; **67**:e5-9. Prospective, Italy F/up: 3 months	n= 39 severe, generalised solar urticaria (SU) that had been poorly responsive to oral antihistamines and/or highly protective UVA and UVB sunscreens. 28 F: 11 M Mean age (range): 31.6 years (19-63) Ski type: I (2), II (11), III (23), IV (3) Exclusion criteria: >18 years, pregnancy or lactation, any other active systemic or skin disease, and use of immunosuppressive or photosensitizing drugs Group A: patients without urticarial response to NB-UVB and BB-UVB Group B: patients who had had a MED elicited by NB-UVB	NB-UVB Group A (29) UVB insensitive SU Three times a week for 4 weeks. Initial dose 70% MED, dose increments 20% or 10% if erythematous response barely visible after 48 hours. Treatment was interrupted for a well-defined painful erythematous response until recovery and then resumed with 50% of the last dose. If SU was precipitated, the following exposure was delivered with the penultimate dose. Cumulative dose of 10.3 (9.9; 11.0) J/cm^2. The dose of the last exposure was 1.9 (1.7; 2.0) J/cm^2. Group B (10) UVB sensitive SU Three times daily (at 4-hour intervals), 5 days a week (on working days) for the first week. Initial dose 50% MUD and 10% increments were delivered at each exposure. During the first week of treatment, an oral antihistamine (cetirizine 10 mg/d) was administered. Afterward, the treatment cycle continued with a single exposure per day, 3 days a week for 3 weeks same regimen as Group A. Cumulative NB-UVB dose was 9.1 (8.5; 10.6) J/cm^2. The dose of the last exposure was 1.2	**Change in sun tolerance** At 1 month follow-up visits, all patients reported improved sun tolerance. **However, SU relapse 1-month f/up** Group A: 4 Group B: 2 **SU relapse at 3 months f/up** Group A: 6 Group B: 2 **Serious adverse events:** **Provocation of SU during treatment** Group A: 9 Group B: 5 **Painful marked erythema:** Group A: 5 Group B: 3 **Mild adverse events** **Mild erythema:** Group A: 9 Group B: 7	**Author's conclusion:** NB-UVB phototherapy was well-tolerated and effectively prevented SU relapses. The GDG did not agree with the author's conclusions based on their results.

		(0.7; 1.4) J/cm^2.		

P.2.2 Case reports

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
Collins P, *et al.* Narrow-band UVB (TL-01) phototherapy: an effective preventative treatment for the photodermatoses. *Br J Dermatol* 1995; **132**:956-63. Open study, UK F/up; October same year Some children	n=20 photodermatoses including amiodarone-induced photosensitivity (1), homozygous variegate porphyria (1), idiopathic solar urticaria (1), congenital erythropoietic porphyria (1) * 1 F: 3 M amiodarone-induced photosensitivity: 56 years homozygous variegate porphyria: 10 years idiopathic solar urticaria: 56 years congenital erythropoietic porphyria: 7 years	NB-UVB 'Hardening' course March/April 1992 or 1993 Initial dose: 70% MED Increment: 20% Outpatients: 3x/weeks x 5 weeks Inpatients: 5x/week x 2 weeks Patients were encouraged to seek exposure to sunlight as much us was reasonably possible during subsequent months. in order to maintain phototherapy benefit.,	**Disease improvement: daily tolerance of direct sunlight** <u>Amiodarone-induced photosensitivity</u> Patients' sun tolerance improved from < 30 minutes to 3-4 hours <u>Homozygous variegate porphyria</u> No benefit <u>Idiopathic solar urticaria</u> Patients' sun tolerance improved from < 5 minutes to 1 hour for 4 months <u>Congenital erythropoietic porphyria</u> Patients' sun tolerance increased from 5 minutes to 30 minutes for 4 weeks	*actinic prurigo (6), hydroa vacciniforme (4) and erythropoietic porphyria (6) **Author's conclusion**: We now routinely consider narrow-band UVB phototherapy for problem photodermatoses.
Garcia-Martin, P. *et al.* Phototolerance induced by narrow-band UVB phototherapy in severe erythropoietic protoporphyria. *Photodermatol*	Erythropoietic protoporphyria with a severe photosensitivity as a result of an enormous gene deletion	NB-UVB Skin hardening, 15 sessions, three times a week, beginning with 300 mJ/cm^2 [60% of assessed	**Disease improvement: daily tolerance of direct sunlight** A few minutes to	Prior treatment conventional sunscreens and oral betacarotene for several years without achieving satisfactory results.

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
Photoimmunol Photomed 2012; **28**:261-3. Case report, Spain	1 M 34 years	MED] and progressive 10% increments of the previous dose at each visit. Cumulative dose of 10,330 mJ/cm^2 Later on, the patient exposed himself daily to sunlight for 10 to 20 minutes in the morning.	appropriate phototolerance in sunny seasons and visible tanning **Sustained benefit** For the three following summers, he only experienced a few episodes of stinging without lesions that resolved in a few minutes. **Treatment tolerability** Good, no adverse events during treatment	
Warren, L. J. *et al.* Erythropoietic protoporphyria treated with narrow-band (TL-01) UVB phototherapy. *Australas J Dermatol* 1998; **39**:179-82. Case report, UK	Erythropoietic protoporphyria and liver function test abnormalities associated with treatment with beta-carotene 1 M 11 years*	NB-UVB Skin hardening. Three times a week, initial dose 70% MED with subsequent 20% increments. Over 21 treatments in 8 weeks, a maximal irradiance of 1.39 J/cm^2 was achieved. Cumulative dose of 16.08 J/cm^2 The patient was encouraged to expose one arm then both arms and face to as much sunlight as possible to maintain UV	**Disease improvement: daily tolerance of direct sunlight** Able to tolerate progressively longer periods of sun exposure with major benefits to lifestyle. Able to participate in regular competitive summer sports for the first time.	*Initially presented at 6 years, but lost to follow-up Prior treatment sunscreens and 50 mg/day β-carotene, then β-carotene canthaxanthin combination capsules, with moderate reduction in photosensitivity

Study reference	Population	Intervention	Outcomes	Comments & additional data not in usable format
		tolerance TL-01 phototherapy repeated in spring months of next 2 years		
Wolf, R. *et al.* Solar urticaria: Long-term rush hardening by inhibition spectrum narrow-band UVB 311nm. *Clin Exp Dermatol* 2013; **38**:446-7. Case report, Germany	Idiopathic solar urticaria 1 M 25 years Skin type II	NB-UVB Skin hardening. Initial dose 0.03 J/cm^2, increased by 30% on each subsequent visit. Total dose of 1.49 J/cm^2, given as 10 irradiations of 0.32 J/cm^2 on successive weekdays (Monday to Friday). Then an additional 10 NB-UVB applications with a dose escalation to 0.52 J/cm^2 (cumulative dose 7.02 J/cm^2).	**Disease improvement: daily tolerance of direct sunlight** Physiological responses to UVA1 and visible light completely normalized. Able to sunbathe during the summer **Sustained benefit** Remission lasted for several months, but relapsed the following summer	Sunscreens with high levels of UVA and UVB protection, oral antihistamines, and steroids had little effect. To sustain the achieved hardening effect, the patient was treated with a further 10 irradiations at a final maintenance dose of 0.55 J/cm^2, reaching a cumulative NB-UVB dose of 12.52 J/cm^2.

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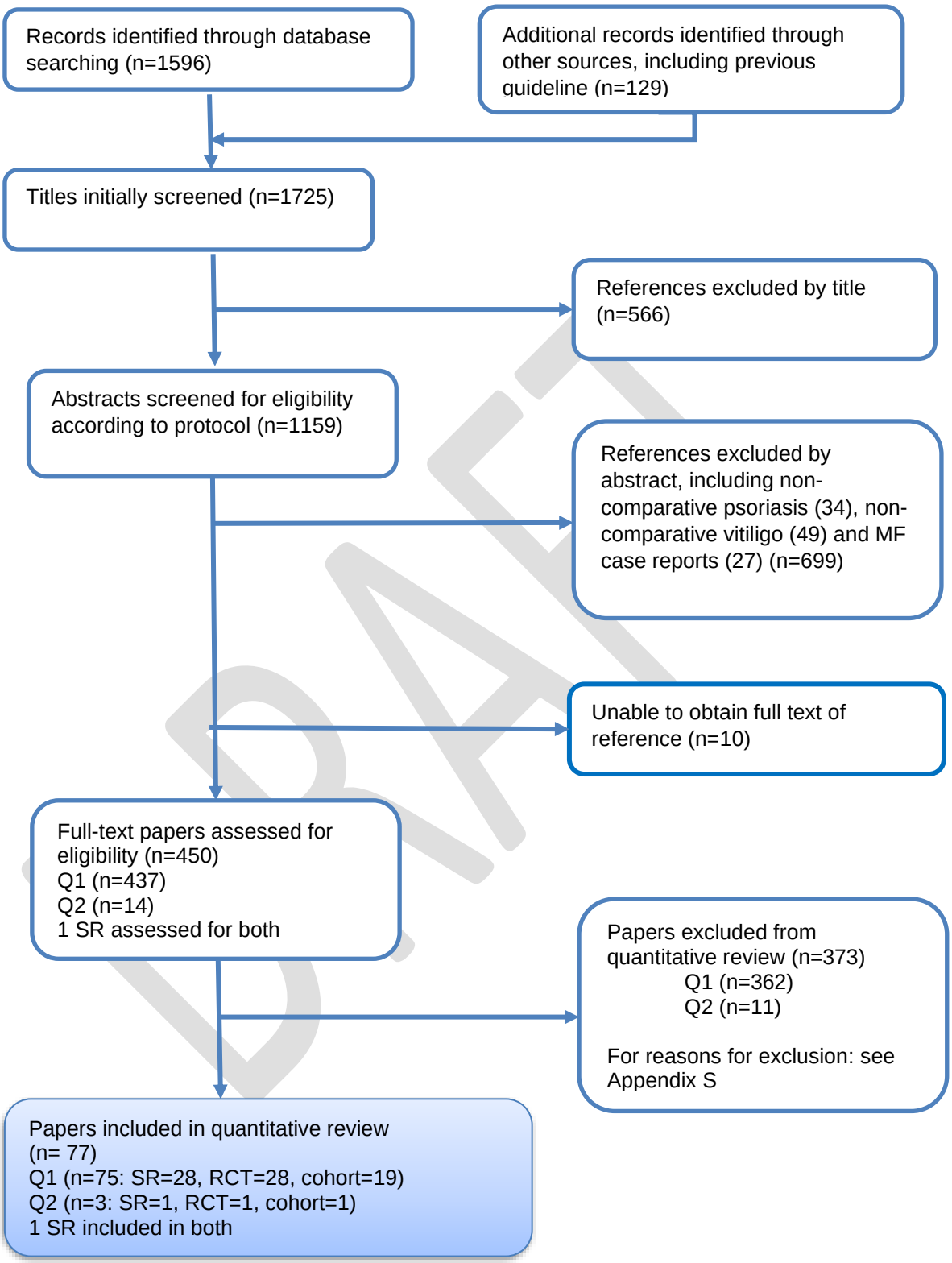
Appendix Q: PRISMA diagram – study selection



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Appendix R: Critical appraisal of included systematic reviews – AMSTAR 2

R.1: Psoriasis systematic reviews

Yang, L. *Chin Med (UK)* 2015; **10**.	Almutawa, F. *Photodermatol Photoimmunol Photomed* 2015; **31**: 5-14.	Chen, X. *Cochrane Database Syst Rev* 2013:Cd009481	Archier, E. *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.	de Jager, M. E. *J Am Acad Dermatol* 2010; **62**:1013-30.	Medical Advisory Secretariat *Ont Health Technol Assess Ser* 2009; **9**:1-66.	Ashcroft, D. M. *Arch Dermatol* 2000; **136**:1536-43.
1. Did the research questions and inclusion criteria for the review include the components of PICO?						
YES	YES	YES	YES	YES	YES	YES
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?						
NO	NO	YES	NO	NO	Partial Yes	YES
3. Did the review authors explain their selection of the study designs for inclusion in the review?						
YES	NO	YES	NO	YES	NO	YES
4. Did the review authors use a comprehensive literature search strategy?						
Partial Yes	Partial Yes	YES	Partial Yes	Partial Yes	Partial Yes	Partial Yes
5. Did the review authors perform study selection in duplicate?						
YES	YES	YES	Unclear*	YES	NO	YES
6. Did the review authors perform data extraction in duplicate?						
YES	YES	YES	Unclear*	YES	NO	NO
7. Did the review authors provide a list of excluded studies and justify the exclusion?						
NO	NO	YES	NO	No list, but did justify exclusion in text	NO	NO
8. Did the review authors describe the included studies in adequate detail?						
NO	NO	YES	NO	Partial Yes	NO	Partial Yes
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?						
YES	Partial Yes	YES	NO	NO	Partial Yes	NO
10. Did the review authors report on the sources of funding for the studies included in the review?						
NO	NO	NO	NO	NO	NO	NO
11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?						

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Yang, L. *Chin Med (UK)* 2015; **10**.	Almutawa, F. *Photodermatol Photoimmunol Photomed* 2015; **31**: 5-14.	Chen, X. *Cochrane Database Syst Rev* 2013:Cd009481	Archier, E. *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.	de Jager, M. E. *J Am Acad Dermatol* 2010; **62**:1013-30.	Medical Advisory Secretariat *Ont Health Technol Assess Ser* 2009; **9**:1-66.	Ashcroft, D. M. *Arch Dermatol* 2000; **136**:1536-43.
YES	YES	YES	NO	No meta-analysis conduced	No meta-analysis conducted	No meta-analysis conducted
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?						
YES	YES	YES	NO	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
13. Did the review authors account for RoB in individual studies when interpreting/discussing the results of the review?						
YES	YES	YES	NO	NO	NO	NO
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?						
YES	YES	YES	NO	NO	NO	NO
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?						
YES	NO	NO (insufficient studies)	NO	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?						
YES	NO	YES	YES	YES	YES	YES

*Not stated although did say 'we' selected and extracted.

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R.2: Vitiligo systematic reviews

Arora, C. J. *Australas J Dermatol* 2020; **61**: e1-e9.	Sakhiya, J. J. *J Clin Diagn Res* 2019; **13**: WE01-WE11.	Li, R. *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31.	Bae, J. M. *JAMA Dermatol* 2017; **153**:666-74.	Chen Y-J, *Complement Ther Med* 2016; **26**:21-7.	Lopes, C. *Am J Clin Dermatol* 2016; **17**:23-32.	Xiao, B.-H. *J Dermatolog Treat* 2015; **26**:340-6.	Whitton, M. E. *Cochrane Database Syst Rev* 2015: Cd003263	Sun, Y. *J Dermatolog Treat* 2015; **26**:347-53.	Matin, R. *BMJ Clin Evid* 2011; **2011**	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Njoo, M. D.*Arch Dermatol* 1998; **134**:1532-40.
1. Did the research questions and inclusion criteria for the review include the components of PICO?											
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?											
YES	NO	Partial Yes	Partial Yes	YES	YES	Partial Yes	YES	NO	Partial Yes	NO	YES
3. Did the review authors explain their selection of the study designs for inclusion in the review?											
NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	YES
4. Did the review authors use a comprehensive literature search strategy?											
YES	YES	Partial Yes	YES	Partial Yes	Partial Yes	Partial Yes	YES	Partial Yes	Partial Yes	NO	YES
5. Did the review authors perform study selection in duplicate?											
YES	YES	YES	YES	Unclear*	YES	YES	YES	YES	NO	YES	YES
6. Did the review authors perform data extraction in duplicate?											
YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO	YES
7. Did the review authors provide a list of excluded studies and justify the exclusion?											
NO	NO	NO	NO	NO	NO	NO	YES	NO	NO	NO	No list, but did justify exclusion in text
8. Did the review authors describe the included studies in adequate detail?											
YES	Partial Yes	Partial Yes	Partial Yes	YES	Partial Yes	Partial Yes	YES	Partial Yes	Partial Yes	Partial Yes	YES
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?											

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Arora, C. J. *Australas J Dermatol* 2020; **61**: e1-e9.	Sakhiya, J. J. *J Clin Diagn Res* 2019; **13**: WE01-WE11.	Li, R. *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31.	Bae, J. M. *JAMA Dermatol* 2017; **153**:666-74.	Chen Y-J, *Complement Ther Med* 2016; **26**:21-7.	Lopes, C. *Am J Clin Dermatol* 2016; **17**:23-32.	Xiao, B.-H. *J Dermatolog Treat* 2015; **26**:340-6.	Whitton, M. E. *Cochrane Database Syst Rev* 2015: Cd003263	Sun, Y. *J Dermatolog Treat* 2015; **26**:347-53.	Matin, R. *BMJ Clin Evid* 2011; **2011**	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Njoo, M. D.*Arch Dermatol* 1998; **134**:1532-40.
YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO	NO
10. Did the review authors report on the sources of funding for the studies included in the review?											
NO	NO	NO	NO	YES	NO	NO	NO	NO	NO	NO	NO
11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?											
YES	NO	YES	NO	NO (different ingredients in the CHM)	NO	NO	YES	YES	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?											
YES	NO	NO	NO	NO	NO	NO	YES	YES	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
13. Did the review authors account for RoB in individual studies when interpreting/discussing the results of the review?											
YES	NO	NO	NO	YES	NO	NO	YES	YES	NO	NO	NO
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?											
YES	YES	YES	NO	YES	NO	NO	YES	YES	NO	NO	NO
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?											
NO	YES	NO (insufficient studies)	NO	NO (but did mention the possibility)	NO	YES	NO (insufficient studies)	NO (but did mention the possibility)	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?											

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Arora, C. J. *Australas J Dermatol* 2020; **61**: e1-e9.	Sakhiya, J. J. *J Clin Diagn Res* 2019; **13**: WE01-WE11.	Li, R. *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31.	Bae, J. M. *JAMA Dermatol* 2017; **153**:666-74.	Chen Y-J, *Complement Ther Med* 2016; **26**:21-7.	Lopes, C. *Am J Clin Dermatol* 2016; **17**:23-32.	Xiao, B.-H. *J Dermatolog Treat* 2015; **26**:340-6.	Whitton, M. E. *Cochrane Database Syst Rev* 2015: Cd003263	Sun, Y. *J Dermatolog Treat* 2015; **26**:347-53.	Matin, R. *BMJ Clin Evid* 2011; **2011**	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Njoo, M. D.*Arch Dermatol* 1998; **134**:1532-40.
YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

*Not stated, although two authors independently extracted the data.

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R.3: Eczema and hand and foot dermatoses systematic reviews

Nankervis, H. *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070	Garritsen, F. M. *Br J Dermatol* 2014; **170**:501-13.	Meduri, N. B. *Photodermatol Photoimmunol Photomed* 2007; **23**:106-12.	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Almutawa, F. *Photodermatol Photoimmunol Photomed* 2015; **31**: 5-14.	Chen X, *Cochrane Database Syst Rev* 2013:Cd009481
Eczema	**Eczema**	**Eczema**	**Eczema**	**Hand & foot dermatoses**	**Hand & foot dermatoses**
1. Did the research questions and inclusion criteria for the review include the components of PICO?					
YES	YES	YES	YES	YES	YES
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?					
YES	Partial Yes	YES	NO	NO	YES
3. Did the review authors explain their selection of the study designs for inclusion in the review?					
YES	NO	NO	NO	NO	YES
4. Did the review authors use a comprehensive literature search strategy?					
Partial Yes	Partial Yes	Partial Yes	NO	Partial Yes	YES
5. Did the review authors perform study selection in duplicate?					
Unclear	YES	YES	YES	YES	YES
6. Did the review authors perform data extraction in duplicate?					
YES	YES	YES	NO	YES	YES
7. Did the review authors provide a list of excluded studies and justify the exclusion?					
NO (referred to database)	NO	NO	NO	NO	YES
8. Did the review authors describe the included studies in adequate detail?					
Partial Yes	YES	Partial Yes	Partial Yes	NO	YES
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?					
YES	YES	NO	NO	Partial Yes	YES
10. Did the review authors report on the sources of funding for the studies included in the review?					
YES	NO	NO	NO	NO	NO
11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?					
No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted	YES (but one paper not hand & foot)	YES

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Nankervis, H. *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070	Garritsen, F. M. *Br J Dermatol* 2014; **170**:501-13.	Meduri, N. B. *Photodermatol Photoimmunol Photomed* 2007; **23**:106-12.	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Almutawa, F. *Photodermatol Photoimmunol Photomed* 2015; **31**: 5-14.	Chen X, *Cochrane Database Syst Rev* 2013:Cd009481
Eczema	**Eczema**	**Eczema**	**Eczema**	**Hand & foot dermatoses**	**Hand & foot dermatoses**
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?					
No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted	YES	YES
13. Did the review authors account for RoB in individual studies when interpreting/discussing the results of the review?					
YES	YES	NO	NO	YES	YES
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?					
NO	YES	NO	NO	YES	YES
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?					
No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted	No meta-analysis conducted	NO	NO (insufficient studies)
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?					
YES	YES	NO	YES	NO	YES

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R.4: All other skin diseases systematic reviews

Atzmony, *Am J Clin Dermatol* 2016; **17**:11-22.	Fazel, *Dermatolog Treat* 2015; **26**:280-3.	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Phan, *JAMA Dermatol* 2019.	Maranda, *Am J Clin Dermatol* 2016; **17**:583-91.	Zwischenberger, *J Am Acad Dermatol* 2011; **65**:925-41.	Wang, *Evid Based Complement Alternat Med* 2018; **2018**:6816981
Lichen planus	**Lichen planus**	**Lichen planus; Mycosis fungoides; Photodermatoses**	**Mycosis fungoides**	**Pityriasis lichenoides**	**Morphoea**	**Pityriasis rosea**
1. Did the research questions and inclusion criteria for the review include the components of PICO?						
YES	YES	YES	YES	YES	YES	YES
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?						
YES	Partial Yes	NO	NO	NO	NO	NO
3. Did the review authors explain their selection of the study designs for inclusion in the review?						
NO	YES	NO	NO	NO	YES	NO
4. Did the review authors use a comprehensive literature search strategy?						
YES	Partial Yes	NO	YES	Partial Yes	Partial Yes	Partial Yes
5. Did the review authors perform study selection in duplicate?						
NO	NO	YES	Unclear*	NO	Unclear**	NO
6. Did the review authors perform data extraction in duplicate?						
YES	NO	NO	YES	NO	Unclear**	NO
7. Did the review authors provide a list of excluded studies and justify the exclusion?						
NO	NO	NO	NO	NO	NO	No list, but do justify exclusion
8. Did the review authors describe the included studies in adequate detail?						
YES	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes	Partial Yes
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?						
Partial Yes	Partial Yes	NO	YES	NO	NO	NO
10. Did the review authors report on the sources of funding for the studies included in the review?						
NO	NO	NO	NO	NO	NO	NO

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Atzmony, *Am J Clin Dermatol* 2016; **17**:11-22.	Fazel, *Dermatolog Treat* 2015; **26**:280-3.	Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.	Phan, *JAMA Dermatol* 2019.	Maranda, *Am J Clin Dermatol* 2016; **17**:583-91.	Zwischenberger, *J Am Acad Dermatol* 2011; **65**:925-41.	Wang, *Evid Based Complement Alternat Med* 2018; **2018**:6816981
Lichen planus	**Lichen planus**	**Lichen planus; Mycosis fungoides; Photodermatoses**	**Mycosis fungoides**	**Pityriasis lichenoides**	**Morphoea**	**Pityriasis rosea**
11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?						
YES	No meta-analysis conducted	No meta-analysis conducted	NO	No meta-analysis conducted	No meta-analysis conducted	YES
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?						
NO	No meta-analysis conduced	No meta-analysis conducted	NO	No meta-analysis conducted	No meta-analysis conducted	NO
13. Did the review authors account for RoB in individual studies when interpreting/discussing the results of the review?						
NO	NO	NO	NO	NO	NO	NO
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?						
YES	NO	NO	NO	YES	NO	YES
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?						
NO	No meta-analysis conducted	No meta-analysis conducted	YES	No meta-analysis conducted	No meta-analysis conducted	YES
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?						
YES	YES	YES	YES	YES	YES	YES

*Not stated, although two authors independently extracted the data.

**Not stated although did say 'we' selected and extracted.

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Appendix S: Papers excluded from quantitative analysis

S.1 Psoriasis

Reference	Reason for exclusion
Aggarwal, P. *J Dermatolog Treat* 2016; **27**:546-51.	Non-randomised within patient (n=30): See Appendix E.2.2
Amornpinyokeit, N. *Photodermatol Photoimmunol Photomed* 2006; **22**:285-9.	Comparative, within lesion (n=10) included in Almutawa. *Photodermatol Photoimmunol Photomed*, 2015; **31**:5-14.
Archier, E. *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:22-31.	SR on carcinogenic risks, outside scope of protocol
Asawanonda, P. *J Eur Acad Dermatol Venereol* 2008; **22**:50-5.	RCT within patient: included in Almutawa, *Photodermatol Photoimmunol Photomed* 2015; **31**:5-14.
Asawanonda, P. *J Am Acad Dermatol* 2006; **54**:1013-8.	RCT (n=24): included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Bagel, J. *J Drugs Dermatol* 2009; **8**:351-7.	**Unable to obtain full text.** RCT within-patient: Control arm included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Barth, J. *Dermatol Monatsschr* 1990; **176**:707-10.	Outside scope: Non-randomised within-patient: comparator BB-UVB: in French
Behrens, S. *J Am Acad Dermatol* 2000; **42**:493-5.	RCT within-patient (n=10): See Appendix E.2.1
Brands, S. *J Am Acad Dermatol* 1999; **41**:991-5.	RCT (n=53): included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66; Control arm included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Brazzelli, V. *Int J Immunopathol Pharmacol* 2005; **18**:755-60.	Non-randomised within patient (n=40): See Appendix E.2.2
Calzavara-Pinton, P. *J Am Acad Dermatol* 1998; **38**:687-90.	RCT within patient (n=12): See Appendix E.2.1
Cameron, H. *Br J Dermatol* 2002; **147**:973-8.	RCT (n=113): Outside scope looking at increment rates; included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Chauhan, P. S. *Clin Exp Dermatol* 2011; **36**:169-73.	RCT (n=51): included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Coven, T. R. *Arch Dermatol* 1997; **133**:1514-22.	Outside scope: non-randomised within-patient (n=22) comparator BB-UVB
Dawe, R. S. *Br J Dermatol* 2005; **153**:613-9.	RCT within-patient (n=60): See Appendix E.2.1
Dawe, R. S. *Br J Dermatol* 2003; **148**:1194-204.	RCT within-patient (n=28): included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Dawe, R. S. *Br J Dermatol* 2003; **149**:669-72.	Not systematic, checked for additional references, none identified
Ehsani, A. H. *Photodermatol Photoimmunol Photomed* 2011; **27**:294-6.	RCT within-patient (n=10): See Appendix E.2.1
Evers, A. W. *Br J Dermatol* 2009; **161**:542-6.	RCT: Same patients as Kleinpenning (2009), outside scope looking at increment rates; included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Farahnik, B. *Psoriasis Targets Ther* 2016; **6**:105-11.	Review on combination of biologic and phototherapy, checked for additional references 3 identified
Ferguson, J. *Photodermatol Photoimmunol Photomed* 2002; **18**:42-3.	Not systematic, checked for additional references, none identified
Foley, P. A. *J Eur Acad Dermatol Venereol* 2010;	Not systematic, checked for additional references, none identified

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24:1135-43.	
Gambichler, T. *Br J Dermatol* 2011; **164**:1383-6.	RCT within-patient (n=14): See Appendix E.2.1
Goldinger, S. M. *Dermatology* 2006; **213**: 134-9.	Non-randomised within-patient (n=16) included in Almutawa. *Photodermatol Photoimmunol Photomed*, 2015; **31**:5-14.
Gordon, P. M. *J Am Acad Dermatol* 1999; **41**:728-32.	RCT (n=100): included in Chen, Cochrane Database Syst Rev 2013:Cd009481; Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21; Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Green, C. *Br J Dermatol* 1988; **119**:691-6.	Outside scope: comparator BB-UVB
Green, C. *Br J Dermatol* 1992; **127**:5-9.	RCT (n=45): included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Grundmann-Kollmann, M. *J Am Acad Dermatol* 2004; **50**:734-9.	RCT (n=30): Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66; Control arm included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Halasz, C. L. *Photodermatol Photoimmunol Photomed* 1999; **15**:81-4.	Outside scope: incremental dose regimen
Hofmann, U. *Aktuelle Dermatol* 1997; **23**:286-9.	Outside scope: comparator BB-UVB: RCT within-patient (n=11) In German:
Iversen, L. *J Eur Acad Dermatol Venereol* 2018.	RCT study protocol only
Jain, V. *Indian J Dermatol Venereol Leprol* 2010; **76**:666-70.	Non-randomised within-patient (n=30): See Appendix E.2.2
Jain, V. K. *Pediatric Dermatol* 2008; **25**:559-64.	RCT within-patient (n=20): See Appendix E.2.1
Karvonen, J. *Acta Derm Venereol* 1989; **69**:82-5.	Outside scope: comparator BB-UVB
Kaur, J. *Clin Exp Dermatol* 2008; **33**:513-5.	Enough higher quality evidence available
Kerscher, M. *Lancet* 1993; **342**:923.	RCT within-patient (n=20): See Appendix E.2.1
Kirke, S. M. *J Invest Dermatol* 2007; **127**:1641-6.	RCT (n=100): included in Chen, *Cochrane Database Syst Rev* 2013:Cd009481; Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66; Control arm included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Kleinpenning, M. M. *Br J Dermatol* 2009; **161**:1351-6.	RCT: Outside scope looking at increment rates; included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Koek, M. B. *BMJ* 2009; **338**:b1542.	RCT (n=196) included in Medical Advisory Secretariat *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Köllner, K. *Br J Dermatol* 2005; **152**:750-4.	Non-randomised within-patient lesion (n=15: n=16): See Appendix E.2.2
Kwon, I.-H. *Photodermatol Photoimmunol Photomed* 2009; **25**:124-7.	Outside scope: incremental dose regimen
Larkö, O. *Acta Derm Venereol* 1989; **69**:357-9.	RCT within-patient: included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Larkö, O. *Acta Derm Venereol* 1982; **62**:507-12.	Outside scope: risk of skin cancer
Léauté-Labrèze, C. *Arch Dermatol* 2001; **137**:1035-9.	RCT (n=71): included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66; Control arm included in Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Leenutaphong, V. *Photodermatol Photoimmunol Photomed* 2000; **16**:202-6.	Outside scope: dosage regimen
Legat, F. J. *Arch Dermatol* 2007; **143**:1016-22.	RCT within-patient (n=14) Combination NB-UVB + alefacept vs alefacept: Drug withdrawn from market

Lehmann, P. *J Am Acad Dermatol* 1997; **36**:501-2.	Letter clarifying earlier publication: no raw data
Lui, H. *J Drugs Dermatol* 2012; **11**:929-37.	**Unable to obtain full text**
Lynch, M. *Trials* 2016; **17**:29.	RCT study protocol only
Magliocco, M. A. *J Am Acad Dermatol* 2006; **54**:115-8.	RCT within-patient (n=11): See Appendix E.2.1
Maleszka, R. *Przegl Dermatol* 2004; **91**:343-50.	In Polish: RCT (n=128 plaque psoriasis vugaris)
Mariaca-Flórez, C. J. *Dermatol Rev Mex* 2017; **61**:115-36.	In Spanish
Markham, T. *Arch Dermatol* 2003; **139**:325-8.	RCT: included in Chen, Cochrane Database Syst Rev 2013:Cd009481; Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.; Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Martín-Ezquerra, G. *J Drugs Dermatol* 2007; **6**:290-2.	RCT: included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Messer, G. *Br J Dermatol* 2001; **144**:628-9.	RCT within-patient (n=24): See Appendix E.2.1
Morri, M. *Gazz Med Ital Arch Sci Med* 2012; **171**:739-48.	RCT (n=60) results not in usable format
Mudigonda, T. *J Am Acad Dermatol* 2012; **66**:664-72.	Not systematic, checked for additional references, none identified
Mudigonda, T. *Cutis* 2012; **90**:149-54.	Not systematic, checked for additional references, none identified
Nazari, S. *Turkderm Deri Hast Frengi Ars* 2005; **39**:103-8.	In Turkish
Ortel, B. *J Am Acad Dermatol* 1993; **29**:736-40.	Enough higher quality evidence available
Ortonne, J. P. *Eur Acad Dermatol Venereol* 2005; **19**:556-61.	RCT: NB-UVB (6 weeks) + Alefacept vs. NB-UVB (12 weeks) + Alefacept vs Alefacept: Drug withdrawn from market
Özdemir, M. *Eur Acad Dermatol Venereol* 2009; **23**:1453-4.	Case report
Özdemir, M. *Acta Derm Venereol* 2008; **88**:589-93.	RCT: included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Pancar, G.Ş. *J Exp Clin Med (Turkey)* 2012; **29**:117-20	In Turkish: (n=34)
Parlak, N. *Photodermatol Photoimmunol Photomed* 2015; **31**:90-7.	Outside scope: incremental dose regimens.
Pasker-de Jong, P. C. *Arch Dermatol* 1999; **135**:834-40.	SR UVB not NB-UVB
Paul, C. *J Eur Acad Dermatol Venereol* 2012; **26**:1-10.	See: Archier, E. *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21.
Penven, K. *Photodermatol Photoimmunol Photomed* 2005; **21**:138-41.	RCT within-patient (n=15): See Appendix E.2.1
Picot, E. *Br J Dermatol* 1992; **127**:509-12.	RCT within-patient (n=15): See Appendix E.2.1
Rim, J. H. *Photodermatol Photoimmunol Photomed* 2002; **18**:131-4.	RCT: included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Ring, J. *Br J Dermatol* 2001; **144**:495-9.	Not NB-UVB this should have been excluded
Roussaki-Schulze, A. V.	RCT: included in Medical Advisory Secretariat. *Ont Health Technol*

Drugs Exp Clin Res 2005; **31**:169-74.	*Assess Ser* 2009; **9**:1-66.
Salem, S. A. *Photodermatol Photoimmunol Photomed* 2010; **26**:235-42.	RCT: included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Schiener, R. *Br J Dermatol* 2000; **143**:1275-8.	RCT within-patient (n=10): See Appendix E.2.1
Sminkels, O. J. *Eur J Dermatol* 2004; **14**:159-65.	RCT: included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Snellman, E. *Acta Derm Venereol* 2004; **84**:132-7.	RCT: included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Storbeck, K. *J Am Acad Dermatol* 1993; **28**:227-31.	RCT within-patient: included in Chen, Cochrane Database Syst Rev 2013:Cd009481.
Taibjee, S. M. *Br J Dermatol* 2005; **153**:960-6.	Non-randomised within-patient lesion (n= 22) included in Almutawa. *Photodermatol Photoimmunol Photomed*, 2015; **31**:5-14.
Tanew, A. *Arch Dermatol* 1999; **135**:519-24.	Enough higher quality evidence available
Toll, A. *J Dermatolog Treat* 2005; **16**:165-8.	Outside scope: comparator UVB
Trott, J. *Eur J Dermatol* 2008; **18**:55-60.	Enough higher quality evidence available
Van Weelden, H. *Br J Dermatol* 1988; **119**:11-9.	Outside scope; comparator BB-UVB
Van Weelden, H. *Acta Derm Venereol* 1990; **70**:212-5.	RCT within-patient (n=10): See Appendix E.2.1
Walters, I. B. *J Am Acad Dermatol* 1999; **40**:893-900.	Outside scope: non-randomised within-patient (n=11): comparator BB-UVB
Wolf, P. *Br J Dermatol* 2012; **166**: 147-53.	RCT within-patient (n=10): See Appendix E.2.1
Wollina, U. *Skin Res Technol* 2012; **18**:212-8.	Non-randomised within patient (n-21): See Appendix E.2.2
Woo, W. K. *Br J Dermatol* 2003; **149**:146-50.	RCT: included in Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.
Yelverton, C. B. *Arch Dermatol* 2008; **144**:1224-5.	Non-comparative (n=27) Enough higher quality evidence available
Yones, S. S. *Arch Dermatol* 2006; **142**:836-42.	RCT: included in Chen, Cochrane Database Syst Rev 2013:Cd009481; Archier, *J Eur Acad Dermatol Venereol* 2012; **26 Suppl 3**:11-21; Medical Advisory Secretariat. *Ont Health Technol Assess Ser* 2009; **9**:1-66.;
Youssef, R. M. *Photodermatol Photoimmunol Photomed* 2008; **24**:256-9.	Non-randomised within-patient (n=20) suberythemogenic dose vs. erythemogenic dose in dark-skinned psoriatic patients outside scope

S.2: Vitiligo

Reference	Reason for exclusion
Abd El-Samad, Z. *J Dermatolog Treat* 2012; **23**:443-8.	Non-randomised within-patient (n=60): See Appendix F.2.2
Ada, S. *Photodermatol Photoimmunol Photomed* 2005; **21**:79-83.	Within-patient RCT: included in Matin, R. *BMJ Clin Evid* 2011; **2011**.
Akdeniz, N. *J Dermatolog Treat* 2014; **25**:196-9.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Anbar, T. S. *Int J Dermatol* 2015; **54**:587-93.	Within-patient RCT (n=20): See Appendix F.2.1
Anbar, T. S. *Photodermatol Photoimmunol Photomed* 2008; **24**:322-9.	Within-patient RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.

Arca, E. *J Dermatol* 2006; **33**:338-43.	RCT: included in Li *Photodermatol Photoimmunol Photomed* 2017; Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.; Matin, *BMJ Clin Evid* 2011; **2011**.
Asawanonda, P. *Acta Derm Venereol* 2008; **88**:376-81.	Within patient RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Asawanonda, P. *Photomed Laser Surg* 2010; **28**:679-84.	Within patient RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Bakis-Petsoglou, S. *Br J Dermatol* 2009; **161**:910-7.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Baldo, A. *G Ital Dermatol Venereol* 2014; **149**:123-30.	Non-blinded within-patient RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74.
Bansal, S. *Photodermatol Photoimmunol Photomed* 2013; **29**:311-7.	Non-blinded parallel RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Bayoumi, W. *Br J Dermatol* 2012; 166: 208-11.	Within-patient RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Bhatnagar, A. *J Eur Acad Dermatol Venereol* 2007; **21**:1381-5.	Enough higher quality evidence available
Bhatnagar, A. *J Eur Acad Dermatol Venereol* 2007; **21**:638-42.	RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Bilal, A. *J Pak Assoc Dermatol* 2014; **24**:327-31.	RCT: included in Li, *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31.
Casacci, M. *J Eur Acad Dermatol Venereol* 2007; **21**:956-63.	Within patient RCT: included in Lopes, *Am J Clin Dermatol* 2016; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Dayal, S. *Pediatr Dermatol* 2016; **33**:646-51.	Non-randomised within-patient (n=20): See Appendix F.2.2
Dell'Anna, M. L. *Clin Exp Dermatol* 2007; **32**:631-6.	RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Dillon, J.-C. P. *Photodermatol Photoimmunol Photomed* 2017; **33**:282-3.	Non-randomised (n=18): data not in extractable format
El Mofty, M. *Dermatol Ther* 2016; **29**:406-12.	RCT (n=45): no outcomes of interest, as degree of improvement not specified
Elgoweini, M. *J Clin Pharmacol* 2009; **49**:852-5.	Non-blinded parallel RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
El-Mofty, M. *Photodermatol Photoimmunol Photomed* 2013; **29**:239-46.	RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74.; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
El-Zawahry, M. B. *Lasers Med Sci* 2017; **32**:1953-8.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Esfandiarpour, I. *J Dermatolog Treat* 2009; **20**:14-8.	RCT: Included in Li *Photodermatol Photoimmunol Photomed* 2017; Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.; Matin, *BMJ Clin Evid* 2011; **2011**.
Fai, D. *J Eur Acad Dermatol Venereol* 2007; **21**:916-20.	Non-comparative (n=110)
Gamil, H. *Clin Exp Dermatol* 2010; **35**:919-21.	Non-randomised within-patient (n=20): See Appendix F.2.2
Goktas, E. O. *J Eur Acad Dermatol Venereol* 2006; **20**:553-7.	Non-randomised within-patient (n=24): included in Bae, *JAMA Dermatol* 2017; **153**:666-74.
Goldinger, S. M. *J Eur Acad Dermatol Venereol* 2007; **21**:504-8.	Within-patient RCT (n=10): See Appendix F.2.1

Grimes, P. E. *JAMA Dermatol* 2013; **149**:68-73.	n<10
Haines, R. H. *BMJ Open* 2018; **8**:e018649.	Study protocol for RCT
Hartmann, A. *Int J Dermatol* 2005; **44**:736-42.	Non-randomised within-patient (n=10): results not published separately as no difference between the two arms: See Appendix F.2.2
Hamzavi, I. *Arch Dermatol* 2004; **140**:677-83.	Within patient RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263; Matin, *BMJ Clin Evid* 2011; **2011**; Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Hong, S.-B. *J Korean Med Sci* 2005; **20**:273-8.	n<10
Ibrahim, H. *J Cosmet Dermatol* 2018.	Outside scope: comparator healthy controls
Ibrahim, Z. A. *J Cosmet Dermatol* 2016; **15**:108-16.	Non-randomised within-patient (n=60): See Appendix F.2.2
Kanwar, A. J. *Clin Exp Dermatol* 2005; **30**:332-6.	No comparator (n=26): included in Bae, *JAMA Dermatol* 2017; **153**:666-74.
Khullar, G. *J Eur Acad Dermatol Venereol* 2015; **29**:925-32.	Within patient RCT: included in Li, *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31; Bae, *JAMA Dermatol* 2017; **153**:666-74.
Klahan, S. *Clin Exp Dermatol* 2009; **34**:e1029-30.	Within patient RCT: included in Li, *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Korobko, I. V. *Dermatol Ther* 2016; **29**:437-41.	Non-randomised within-patient (n=24): See Appendix F.2.2
Kullavanijaya, P. *Photodermatol Photoimmunol Photomed* 2004; **20**:248-51.	Non-randomised within-patient (n=20): See Appendix F.2.2
Lee, J. *Dermatology* 2016; **232**:224-9.	No comparator (n=32)
Leone, G. *Clin Exp Dermatol* 2006; **31**:200-5.	Within patient RCT: included in Li, *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.; Matin, *BMJ Clin Evid* 2011; **2011**.
Li, L. *Dermatol Ther* 2015; **28**:131-4.	Within-patient RCT (n=25): See Appendix F.2.1
Li, Y. X. *Chin J Dermato Venerol Integ Trad W Med* 2011 **10**:181-82.	RCT: included in Sun, *J Dermatolog Treat* 2015; **26**:347-53. In Chinese.
Lin, J. *J Clin Dermatol* 2016; **45**:465-8.	In Chinese: looking at the relationship of initial repigmentation and plateau
Linthorst Homan, M. W. *J Eur Acad Dermatol Venereol* 2012; **26**:690-5.	Within patient RCT: included in Sun, *J Dermatolog Treat* 2015; **26**:347-53; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Majid, I. *Photodermatol Photoimmunol Photomed* 2010; **26**:230-4.	Non-randomised within-patient (n=80): See Appendix F.2.2
Majid, I. *Indian J Dermatol Venereol Leprol* 2010; **76**:254-8.	Non-randomised within-patient (n=90): See Appendix F.2.2
Majid, I. *Indian J Dermatol Venereol Leprol* 2012; **78**:159-64.	No comparator (n=40)
Mehrabi, D. *Arch Dermatol* 2006; **142**:927-9.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Middelkamp-Hup, M. A. *J Eur Acad Dermatol Venereol* 2007; **21**:942-50.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Mohaghegh, F. *J Res Med Sci*	Within patient RCT: included in Whitton, *Cochrane Database Syst*

2012; **17**:S131-S3.	*Rev* 2015:Cd003263.
Namazi, M. R. *Iran J Med Sci* 2015; **40**:478-84.	Within patient RCT: (n=30)
Nguyen, S. *JAMA Dermatol* 2018; **154**:725-6.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Njoo, M. D. *Arch Dermatol* 1999; **135**:1514-21.	SR reported separately see: Njoo, M. D. *Arch Dermatol* 1998; **134**:1532-40.
Nordal, E. J. *J Eur Acad Dermatol Venereol* 2011; **25**:1440-3.	Within-patient RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Parsad, D. *J Eur Acad Dermatol Venereol* 2006; **20**:175-7.	Enough higher quality evidence available
Rath, N. *Indian J Dermatol Venereol Leprol* 2008; **74**:357-60.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Sadick, N. *Cosmetic Dermatol* 2004; **17**:723-6.	Non-randomised within-patient (n=10, including 10 with vitiligo, results not reported separately. UVB/UVA1 source using 300 mJ/cm^2 UVB
Sahu, P. *Photodermatol Photoimmunol Photome* 2016; **32**:262-8.	Non-randomised within-patient (n=30): See Appendix F.2.2
Salah Eldin, M. M. *J Lasers Med Sci* 2017; **8**:123-7.	Non-randomised within-patient (n=30): See Appendix F.2.2
Sapam, R. *Int J Dermatol* 2012; **51**:1107-15.	RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Satyanarayan, H. S. *Indian J Dermatol Venereol Leprol* 2013; **79**:525-7	Within patient RCT: included in Li, *Photodermatol Photoimmunol Photomed* 2017; **33**:22-31;; Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Shan, X. *Indian J Dermatol Venereol Leprol* 2014; **80**:336-8.	Non-comparative (n=93)
Sharma, P. *Am J Clin Dermatol* 2011; **12**:127-32.	Outside scope: comparison vitiligo vs vitiligo-melasma
Sheth, V. M. *J Am Acad Dermatol* 2012; **67**:318-20.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Shin, J. *Br J Dermatol* 2012; **166**:658-61.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Stinco, G. *Eur J Dermatol* 2009; **19**:588-93.	Non-blinded parallel RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Suo, D.-F. *J Clin Dermatol* 2010; **39**:127-9.	In Chinese: RCT (n=82)
Tanemura, A. *Skin Research* 2011; **10**:485-93.	In Japanese: Comparative (n=33)
Tjioe, M. *Acta Derm Venereol* 2002; **82**:369-72.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263; Gambicher, *J Am Acad Dermatol* 2005; **52**:660-70.
Vachiramon, V. *Lasers Surg Med* 2016; **48**:197-202.	Within-patient RCT: (n=27): See Appendix F.2.1
Verhaeghe, E. *Dermatology* 2011; **223**:343-8.	Within patient RCT: included in Lopes, *Am J Clin Dermatol* 2016; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Westerhof, W. *Arch Dermatol* 1997; **133**:1525-8.	Non-blinded parallel trial: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Matin, *BMJ Clin Evid* 2011; **2011**; Njoo, *Arch Dermatol* 1998; Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Wind, B.S. *Br J Dermatol* 2010; **162**:1142-4.	RCT: included in Whitton, *Cochrane Database Syst Rev* 2015:Cd003263.
Yan, Y. *J Clin Dermatol* 2013; **2**: 120-3.	RCT: included in Lopes, *Am J Clin Dermatol* 2016. In Chinese
Yang, Y. S. *Int J Dermatol*	RCT: included in Sun, Y. *J Dermatolog Treat* 2015; **26**:347-53.

2010; **49**:317-23,	
Yones, S. S. *Arch Dermatol* 2007; **143**:578-84.	RCT: included in Bae, *JAMA Dermatol* 2017; **153**:666-74; Whitton, *Cochrane Database Syst Rev* 2015:Cd003263. Matin, *BMJ Clin Evid* 2011; **2011**.
Yuan, J. *Eur J Dermatol* 2016; **26**:592-8.	Non-randomised within-patient (n=20): See Appendix F.2.2
Yuksel, E. P. *Eur J Dermatol* 2009; **19**:341-4.	Non-blinded comparative (n=30): included in Bae, *JAMA Dermatol* 2017; **153**:666-74 as an RCT
Zhang, M. *Exp Ther Med* 2017; **13**:3383-7.	Non-randomised within-patient (n=33): See Appendix F.2.2

S.3: Eczema/atopic dermatitis

Reference	Reason for exclusion
Aquilina, C. *Nouv Dermatol* 1998; **17**:105-7.	Case reports
Aubin, F. *Br J Dermatol* 2005; **152**:99-103.	Non-comparative (n=54: including 8 with AD and 10 with non-AD): See hand and foot dermatoses appendix H.2.2.2
Brass, D. *Br J Dermatol* 2018; **179**:63-71.	RCT: See: hand and foot dermatoses appendix H.1.2.1
Clayton, T. H. *Clin Exp Dermatol* 2007; **32**:28-33.	Non-comparative (n=60): See appendix G.2.1
Collins, P. *Br J Dermatol* 1995; **133**:653-5.	Non-comparative: included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Dayal, S. *An Bras Dermatol* 2017; **92**:801-6.	Non-comparative (n=30): See appendix G.2.1
Der Petrossian, M. *Br J Dermatol* 2000; **142**:39-43.	Within patient RCT: included in Garritsen, *Br J Dermatol* 2014; **170**:501-13; Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Eustace, K. *Pediatr Dermatol* 2017; **34**:150-5.	Non-comparative (n=75: including 48 with AD): See Appendix G.2.1
Gambichler, T. *Br J Dermatol* 2009; **160**:652-8.	RCT: included in Nankervis, H. *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070; Garritsen, *Br J Dermatol* 2014; **170**:501-13.
George, S. A. *Br J Dermatol* 1993; **128**:49-56.	Non-comparative: included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70. See appendix G.2.1.
Heinlin, J. *J Eur Acad Dermatol Venereol* 2011; **25**:765-73.	RCT: included in Nankervis, H. *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070; Garritsen, *Br J Dermatol* 2014; **170**:501-13.
Jensen, L. *Dermatol Rep* 2012; **4**.	Non-comparative: results for NB-UVB not reported separately.
Jury, C. S. *Clin Exp Dermatol* 2006; **31**:196-9.	Non-comparative (n=77: including 25 with atopic eczema): See appendix G.2.1.
Khoo, L. *J Dermatolog Treat* 1999; **10**:133-8.	Not systematic, checked for additional references.
Kuhl, J. T. *Photodermatol Photoimmunol Photomed* 2008; **24**:152-3.	Non-comparative n<10.
Legat, F. J. *Arch Dermatol* 2003; **139**:223-4.	Within patient RCT: included in Garritsen, *Br J Dermatol* 2014; **170**:501-13; Meduri, *Photodermatol Photoimmunol Photomed* 2007; **23**:106-12; Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Ma, L. *Dermatol Ther* 2017; **30**.	Moved to photodermatosis.
Majoie, I. M. *J Am Acad Dermatol* 2009; **60**:77-84.	Within patient RCT: included in Nankervis, *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070; Garritsen, *Br J Dermatol* 2014; **170**:501-13.
Mok, Z. R. *Pediatr Dermatol* 2014; **31**:698-	Non-comparative (n=25): See appendix G.2.1.

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Nabi, H. *J Pak Assoc Dermatol* 2011; **21**:106-8.	Non-comparative (n=16): See appendix G.2.1.
Nemoto, O. *Skin Research* 2007; **6**:653-8.	In Japanese: conference papers looking at several cases.
Pasić, A. *Pediatr Dermatol* 2003; **20**:71-7.	Non-comparative (n=57: including 21 with AD): See appendix G.2.1.
Patrizi, A. *Clin Cosmet Investig Dermatol* 2015; **8**:511-20.	Not systematic, checked for additional references, two identified.
Pavlovsky, M. *J Eur Acad Dermatol Venereol* 2011; **25**:727-9.	Non-comparative (n=129: including 41 with AD): See appendix G.2.1.
Reynolds, N. J. *Lancet* 2001; **357**:2012-6.	RCT: included in Nankervis, *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070; Garritsen, *Br J Dermatol* 2014; **170**:501-13; Meduri, *Photodermatol Photoimmunol Photomed* 2007; **23**:106-12; Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Sezer, E. *Photodermatol Photoimmunol Photomed* 2007; **23**:10-4.	Within-patient RCT (n=15): See hand and foot dermatoses appendix H.2.1.1.
Sugiura, K. *Skin Research* 2008; **7**:53-60.	**In Japanese:** non-comparative (n=124) 66% had effective results.
Tan, E. *Australas J Dermatol* 2010; **51**:268-73.	Non-comparative (n=116, including 61 with AD) results not reported by disease. Overall NB-UVB effective in 72%.
Tintle, S. *J Allergy Clin Immunol* 2011; **128**:583-93.e1-4.	Non-comparative (n=12): See appendix G.2.1.
Tzang, T. Y. *Acta Derm Venereol* 2006; **86**:34-8.	Within patient RCT: included in Nankervis, H. *Programme Grants Appl Res* 2016; **4:** DOI 10.3310/pgfar04070.
Vähävihu, K. *Br J Dermatol* 2010; **163**:321-8.	Non-comparative (n=18): See appendix G.2.1.
Williams, H. C. *Clin Exp Dermatol* 2008; **33**:685-8.	Not systematic, checked for additional references, none identified.

S.4: Hand and foot dermatoses

Reference	**Reason for exclusion**
Georgian Med News 2009:56-9.	In Russian
Al-Mutairi, N. *Lasers Med Sci* 2013; **28**:1119-24.	Non-comparative (n=41, including 15 with palmoplantar psoriasis): See appendix H.2.2.1.
Aubin, F. *Br J Dermatol* 2005; **152**:99-103.	Non-comparative (n=54: including 8 with AD and 10 with non-AD): See appendix H.2.2.2.
Campolmi L, *Int J Immunopathol Pharmacol* 2002, **13**: 11-13.	Non-comparative (n=11): See appendix H.2.2.
Demirsoy, E. O. *J Drugs Dermatol* 2013; **12**:1039-43.	**Unable to obtain full text**
Goldberg, D. J. *Cosmet Laser Ther* 2011; **13**:47-9.	Non-comparative (n=10): See appendix H.2.2.
Jensen, L. *Dermatol Rep* 2012; **4**.	Non-comparative: results for NB-UVB not reported separately.
Nisticò, S. P. *J Eur Acad Dermatol Venereol* 2006; **20**:523-6.	Non-comparative (n=54): See appendix H.2.2.
Nordal, E.J. *Acta Derm Venereol* 2004; **84**:302-4	Non-comparative (n=30): See appendix H.2.2.
Rivard, J. *Drugs Dermatol* 2006; **5**:550-4.	**Unable to obtain full text**
Sezer, E. *J Dermatol* 2007; **34**:435-40.	RCT: Included in Chen, Cochrane Database Syst Rev

	2013:Cd009481.
Sezer, E. *Photodermatol Photoimmunol Photomed* 2007; **23**:10-4.	Within-patient RCT (n=15): See appendix H.2.1.
Shroff, A. *Int J Dermatol* 2016; **55**:e447-53.	Non-comparative (n=30): See appendix H.2.2.
Su, L. N. *Lasers Med Sci* 2017; **32**:1819-23.	Within patient RCT (n=64): See appendix H.2.1.

S.5: Other skin diseases (excluding photodermatoses)

Reference	Disease	Reason for Exclusion
Abdallat, S. A. *ISRN Dermatol* 2014; **2014**.	MF/CTCL/ parapsoriasis	Non-comparative (n=27) See appendix J.2.1.
Aboín-González, S. *Actas Dermosifiliogr* 2010; **101**:179-80.	Lichen nitidus	Case report: see appendix O.11.1.1.
Ada, S. *J Am Acad Dermatol* 2005; **53**:149-51.	Uremic pruritus	Non-comparative (n=20): See appendix M.2.1.
Ahmad, K. *Acta Derm Venereol* 2007; **87**:413-7.	MF/CTCL/ parapsoriasis	Comparative: included in Phan, *JAMA Dermatol* 2019; **155**:335-341.
Ahn, S. J. *J Eur Acad Dermatol Venereol* 2006; **20**:1332-4.	Pseudoainhum (with psoriasis)	Case report: see appendix O.11.1.1.
Aihara, M. *J Dermatol* 2011; **38**:151-4.	Histiocytosis	Case report: see appendix O.11.1.1.
Almohideb, M. *Clin Lymphoma Myeloma Leuk* 2017; **17**:604-12.	MF/CTCL	Comparative: included in Phan, *JAMA Dermatol* 2019; **155**:335-341.
Alonso-González, J. *Actas Dermosifiliogr* 2013; **104**:527-9.	Lichen amyloidosis	Case report: see appendix O.11.1.1.
Aquilina, C. *Nouv Dermatol* 1998; **17**:105-7.	Pruritic popular eruption in HIV/radiotherapy	Case report: see appendix O.11.1.1.
Aubin, F. *Br J Dermatol* 2005; **152**:99-103.	Alopecia areata	Non-comparative (n=8): See appendix O.1.2.1.
Aydogan, K. *Int J Dermatol* 2012; **51**:98-103	Urticaria	Non-comparative (n=22): See appendix N.2.1.
Aydogan, K. *J Eur Acad Dermatol Venereol* 2006; **20**:573-7.	MF/CTCL/ parapsoriasis	Non-comparative (n=45) See appendix J.2.1.
Aydogan, K. *Photodermatol Photoimmunol Photomed* 2008; **24**:128-33.	Pityriasis lichenoides	No comparator (n=31): See appendix K.2.1.
Bagazgoitia, L. *Indian J Dermatol* 2010; **55**:200-1.	Renal failure/eczema herpeticum	Outside scope
Bala, H. R. *Australas J Dermatol* 2016; **57**:327-9.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Baldo, A. *Br J Dermatol* 2002; **147**:979-81.	Pruritus in polycythaemia vera	Non-comparative (n=10): See appendix M.2.1.
Balighi, K. *Iran J Dermatol* 2016; **19**:21-4.	Graft vs host disease	Non-comparative (n=7): See appendix O.2.2.1.
Bard, S. *Pediatr Dermatol* 2011; **28**:524-7.	Histiocytosis	Case report: See appendix O.11.1.1.
Bayramgürler, D. *Photodermatol Photoimmunol Photomed* 2011; **27**:325-7.	Perforating collagenosis/Kyrle disease	Case report: See appendix O.8.2.2.
Bayramgürler, D. *Australas J Dermatol* 2003; **44**:76-8.	Alopecia areata	Non-comparative (n=29): See appendix O.1.2.1.
Bedrikow, R. B. *An Bras Dermatol* 2012; **87**:63-9.	Morphea/scleroderma	Non-comparative (n=11): See appendix O.5.2.1

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Reference	Disease	Reason for Exclusion
Bellavista, S. *Dermatol Ther* 2013; **26**:173-5.	Pruritic popular eruption in HIV/radiotherapy	Case report: see appendix O.11.1.1.
Berroeta, L. *Clin Exp Dermatol* 2004; **29**:97-8.	Urticaria	Non-comparative (n=94); See appendix N.2.1.
Betto, P. *G Ital Dermatol Venereol* 2008; **143**:271-3.	Pityriasis rubra pilaris	**Unable to obtain full text**, summarized from abstract: Case report: see appendix O.11.1.1.
Bilgili, S. G. *Photodermatol Photoimmunol Photomed* 2013; **29**:215-7.	Lichen nitidus	Case report: see appendix O.11.1.1.
Booth, A. V. *Dermatol Online J* 2005; **11**:9.	Pityriasis rubra pilaris	Case report: see appendix O.11.1.1.
Bordignon, M. *Am J Clin Dermatol* 2008; **9**:51-5.	Subcorneal pustular dermatosis	Case report: see appendix O.11.1.1.
Borzova, *J Am Acad Dermatol* 2008; **59**:752-7.	Uritaria	Non-comparative (n=8): See appendix N.2.1.
Boulos, S. *J Am Acad Dermatol* 2014; **71**:1117-26.	MF/CTCL/ parapsoriasis	Non-comparative (n=34, including 14 treated with NB-UVB): See appendix J.2.1.
Bozdag, K. *Cutan Ocul Toxicol* 2012; **31**:67-9.	Impetigo herpetoformis (pregnancy)	Case report: see appendix O.11.1.1.
Boztepe, G. *J Am Acad Dermatol* 2005; **53**:242-6.	MF/CTCL/ parapsoriasis	Non-comparative (n=14): See appendix J.2.1.
Brazzelli, V. *Photodermatol Photoimmunol Photomed* 2013; **29**:330-3.	Pityriasis lichenoides	No comparator (n=5): Included in Maranda, *Am J Clin Dermatol* 2016; **17**:583-91.
Brazzelli, V. *J Eur Acad Dermatol Venereol* 2012; **26**:465-9.	Mastocytosis	Non-comparative (n=5) included in Brazzelli, *Photodermatol Photoimmunol Photomed* 2016; **32**:238-46.
Brazzelli, V. *Br J Dermatol* 2010; **162**:404-9.	Graft vs host disease	Non-comparative (n=10): See appendix O.2.2.1.
Brazzelli, V. *Photodermatol Photoimmunol Photomed* 2007; **23**:229-33.	MF/CTCL/ parapsoriasis	Non-comparative (n=20): See appendix J.2.2.
Brenninkmeijer, E. E. A. *Br J Dermatol* 2010; **163**:823-31.	Nodular prurigo	Prurigo form of atopic dermatitis, not nodular prurigo
Brownell, I. *Dermatol Online J* 2007; **13**:11.	Morphoea/scleroderma	Case report: See appendix O.5.2.2.
Calzavara-Pinton, P. *J Am Acad Dermatol* 2012; **67**:e5-9.	Urticaria	Solar urticaria: moved to Q2
Cameron, H. *Br J Dermatol* 1997; **137**:150-1.	Subcorneal pustular dermatosis	Case report: see appendix O.11.1.1.
Can, B. *Photodermatol Photoimmunol Photomed* 2011; **27**:216-8.	Pigmented purpuric dermatosis/Schamberg's disease	Case report: see appendix O.11.1.1.
Carter, J. *J Am Acad Dermatol* 2009; **60**:39-50.	MF/CTCL	Non-systematic checked for references none identified
Castano, E. *J Cutan Pathol* 2013; **40**:924-34.	MF/CTCL/ parapsoriasis	Non-comparative (n=69 paediatric MF including 50 with hypopigmented MF): See appendix J.2.1.
Chan, N. P. Y. *Lasers Surg Med* 2010; **42**:712-9.	Facial depigmentation	Facial depigmentation, outside scope
Chung, Y. L. *J Eur Acad Dermatol Venereol* 2007; **21**:1007-9.	Macular hypomelanosis	Case report: See appendix O.3.2.3.
Clark, C. *Arch Dermatol* 2000; **136**:748-52.	MF/CTCL/ parapsoriasis	Non-comparative: included in Gambichler, *J Am Acad Dermatol*

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Reference	Disease	Reason for Exclusion
		2005; **52**:660-70.
Colbert, R. L. *Arch Dermatol* 2007; **143**:19-20.	Lichen sclerosus	Case report: see appendix O.11.1.1.
Coronel-Pérez, I. M. *Actas Dermosifiliogr* 2007; **98**:259-64.	MF/CTCL/ parapsoriasis	In Spanish, PDF not obtained, done from abstract: Non-comparative (n=23): See appendix J.2.1.
De Vrieze, N. H. N. *Ned Tijdschr Dermatol Venereol* 2014; **24**:353-5.	MF/CTCL/ parapsoriasis	In Dutch: Non-comparative (n=6): **Unable to obtain full text,** done from abstract: See appendix J.2.1.
Demirsoy, E. O. *Turk Dermatoloji Dergisi* 2012; **6**:158-61.	Pityriasis lichenoides	In Turkish. No comparator (n=3): **Unable to obtain full text**, summarized from abstract: See appendix K.2.1.
Dereure, O. *Dermatology* 2009; **218**:1-6.	MF/CTCL/ parapsoriasis	Non-comparative (n=22) See appendix J.2.1.
Diederen, P. V. M. M. *J Am Acad Dermatol* 2003; **48**:215-9.	MF/CTCL	Comparative: included in Phan, *JAMA Dermatol* 2019; **155**:335-341, Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Do, J. E. *Clin Exp Dermatol* 2009; **34**:e280-1.	Histiocytosis	Case report: see appendix O.11.1.1.
Do, M. O. *J Korean Med Sci* 2007; **22**:163-6.	Lichen nitidus	Case report: see appendix O.11.1.1.
Dogra, S. *Indian J Dermatol Venereol Leprol* 2015; **81**:124-35.	MF/CTCL	Not systematic, checked for references, one identified
Duarte, I. A. G. *An Bras Dermatol* 2013; **88**:306-8.	MF/CTCL/ parapsoriasis	Non-comparative (n=62): See appendix J.2.1.
El-Mofty, M. *Photodermatol Photoimmunol Photomed* 2005; **21**:281-6.	MF/CTCL	Comparative: included in Phan, *JAMA Dermatol* 2019; **155**:335-341.
Ersoy-Evans, S. *Pediatr Dermatol* 2008; **25**:599-605.	Pityriasis lichenoides:	No comparator (n=5) included in Maranda, E. L. *Am J Clin Dermatol* 2016; **17**:583-91.
Erturan, I. *Turk Klin Dermatol* 2012; **22**:191-4.	Eosinophilic pustular follocuilitis	Case report: see appendix O.11.1.1.
Eustace, K. *Pediatr Dermatol* 2017; **34**:150-5.	Pityriasis lichenoides, nodular prurigo	No comparator (n=3): See appendix K.2.1. & L.2.1.
Fabbrocini, G. *Acta Dermatovenerol Croat* 2015; **23**:63-5.	Erythema dyschromicum perstans	Case report: see appendix O.11.1.1.
Fernandez-Guarino M. *ctas Dermosifiliogr* 2019; **110**:490-3.	Lichen planus	No comparator (n=10): See appendix I.2.1.
Fujimura, T. *J Dermatol* 2009; **36**:228-31.	Papuloerythroderma	Case report: see appendix O.11.1.1.
Gambichler, T. *J Am Acad Dermatol* 2005; **52**:363-4.	Perforating collagenosis/Kyrle disease	Case report: See appendix O.8.2.2.
García-donoso, C. *J Eur Acad Dermatol Venereol* 2007; **21**:1102-4.	Pruritic popular eruption in HIV/radiotherapy (with breast cancer)	Case report: see appendix O.11.1.1.
Gathers, R. C. *J Am Acad Dermatol* 2002; **47**:191-7.	MF/CTCL/ parapsoriasis	Non-comparative: included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Geller, L. *Pediatr Dermatol* 2015; **32**:579-92.	Pityriasis lichenoides	Not systematic, checked for additional references none identified
George, L. *Bone Marrow*	Graft vs host disease	Non-comparative (n=20): See

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Reference	Disease	Reason for Exclusion
Transplant 2016; **51**:988-90.		appendix O.2.2.1.
Ghodsi, S. Z. *Clin Exp Dermatol* 2005; **30**:376-8.	MF/CTCL/ parapsoriasis	Non-comparative (n=16): See appendix J.2.1.
Gökdemir, G. *J Eur Acad Dermatol Venereol* 2006; **20**:804-9.	MF/CTCL/ parapsoriasis	Non-comparative (n=23): See appendix J.2.1.
Grundmann-Kollmann, M. *Transplantation* 2002; **74**:1631-4.	Graft vs host disease	Non-comparative n=10: See appendix O.2.2.1.
Gudi, V. S. *Clin Exp Dermatol* 2004; **29**:683-4.	Pigmented purpuric dermatosis/Schamberg's disease	Case report: see appendix O.11.1.1.
Habib, F. *Ann Dermatol Venereol* 2005; **132**:17-20.	Lichen planus	Non-comparative (n=20): See appendix I.2.1.
Hamada, T. *Acta Derm Venereol* 2013; **93**:110-1.	Hailey-Hailey disease	Case report: see appendix O.11.1.1.
Hassab-El-Naby, H. M. *J Cutan Pathol* 2013; **40**:397-404.	MF/CTCL/ parapsoriasis	Non-comparative (n=27): See appendix J.2.1.
Heng, Y. K. *Pediatr Dermatol* 2014; **31**:477-82.	MF/CTCL/ parapsoriasis	Non-comparative (n=46): See appendix J.2.1.
Herzinger, T. *Clin Exp Dermatol* 2005; **30**:379-81.	MF/CTCL/ parapsoriasis	Non-comparative (n=16): See appendix J.2.1.
Hinojosa, J. A. *Br J Dermatol* 2018; **178**:e327.	Burn induced leukoderma	Case report: see appendix O.11.1.1.
Hofer, A. *Arch Dermatol* 1999; **135**:1377-80.	MF/CTCL/ parapsoriasis	Non-comparative: included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Holme, S. A. *J Pain Symptom Manage* 2001; **22**:803-5.	Pruritus	Case report: See appendix M.2.2.
Hoot, J. W. *J Dermatolog Treat* 2018; **29**:272-6.	MF/CTCL/ parapsoriasis	Outside scope looking at treatment received by those who progressed
Hsu, M. M. *Br J Dermatol* 2003; **149**:888-9.	Pruritus	Case report: See appendix M.2.2.
Husain, Z. *Cutis* 2017; **99**:E30-e3.	Mastocytosis	Case report: See appendix O.4.2.2.
Hwang, S. W. *Ann Dermatol* 2009; **21**:261-7.	Macular hypomelanosis	Non-comparative (n=20): See appendix O.3.2.2.
Imafuku, S. *Br J Dermatol* 2007; **157**:1277-9.	Histiocytosis	Case report: see appendix O.11.1.1.
Inui, S. *J Am Acad Dermatol* 2005; **53**:533-4.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Iraji, F. *J Res Med Sci* 2011; **16**:1578-82.	Lichen planus	Included in Atzmony, *Am J Clin Dermatol* 2016; **17**:11-22 & Fazel *J Dermatolog Treat* 2015; **26**:280-3.
Iyama, S. *Int J Hematol* 2014; **99**:471-6.	Graft vs host disease	Non-comparative (n=11): See appendix O.2.2.1.
Jang, M. S. *Eur J Dermatol* 2011; **21**:634-5.	Nodular prurigo	Case report: See appendix L.2.2.
Jang, M. S. *Ann Dermatol* 2011; **23**:474-80	MF/CTCL	Non-comparative (n=14): See appendix J.2.1.
Jang, S. *Ann Dermatol* 2016; **28**:90-3.	Graft vs host disease	Case report: See appendix O.2.2.2.
Jury, C. S. *Clin Exp Dermatol* 2006; **31**:196-9.	Alopecia areata, pityriasis lichenoides	Non-comparative (n=77: including 6 alopecia areata, 2 pityriasis lichenoides chronica): See appendix

Reference	Disease	Reason for Exclusion
		O.1.2.1 & K.2.1.
Kalkan, G. *J Pak Med Assoc* 2014; **64**:579-82.	Primary localized cutaneous amyloidosis	Case report: see appendix O.11.1.1.
Kaminska, E. C. *Photodermatol Photoimmunol Photomed* 2012; **28**:162-4.	Netherton's syndrome	Case report: see appendix O.11.1.1.
Kang, M. J. *J Dermatolog Treat* 2009; **20**:368-70.	Lichen amyloidosis	Case report: see appendix O.11.1.1.
Kanokrungsee, S. *Clin Exp Dermatol* 2012; **37**:149-52.	MF/CTCL/ parapsoriasis	Non-comparative (n=11): See appendix J.2.1.
Karadag, A. S. *Photodermatol Photoimmunol Photomed* 2013; **29**:97-9.	Pigmented purpuric dermatosis/Schamberg's disease	Case report: see appendix O.11.1.1.
Keen, M. A. *J Pak Assoc Dermatol* 2015; **25**:227-9.	Macular hypomelanosis	No details of treatment
Khachemoune, A. *Am J Clin Dermatol* 2007; **8**:29-36.	Pityriasis lichenoides	Case report: included in Maranda, E. L. *Am J Clin Dermatol* 2016; **17**:583-91.
Khazai, N. B. *J Clin Endocrinol Metab* 2009; **94**:2037-43.	Vitamin D insufficiency	RCT (n=30), not NB-UVB
Khoo, L. *J Am Acad Dermatol* 1999; **41**:803-4.	Pityriasis rubra pilaris	Case report: see appendix O.11.1.1.
Kim, M.-B. *J Am Acad Dermatol* 2012; **66**:598-605.	Macular hypomelanosis	Non-comparative (n=23): See appendix O.3.2.2.
Kirby, B. *Br J Dermatol* 2000; **142**:376-7.	Pityriasis rubra pilaris	Case report: see appendix O.11.1.1.
Kocaturk, E. *Photodermatol Photoimmunol Photomed* 2009; **25**:55-6.	Pigmented purpuric dermatosis/Schamberg's disease	Case report: see appendix O.11.1.1.
Koh, M. J. *Clin Exp Dermatol* 2014; **39**:474-8.	MF/CTCL	Non-comparative (n=9): See appendix J.2.1.
Koh, M. J. A. *Photodermatol Photoimmunol Photomed* 2009; **25**:169-70.	Pruritus	Case report: See appendix M.2.2.
Koh, M. J. *Int J Dermatol* 2013; **52**:1495-9.	Pityriasis lichenoides	Non-comparative (n=15, including 5 treated with NB-UVB) Paediatric (n=2): included in Maranda, *Am J Clin Dermatol* 2016; **17**:583-91.
Kreuter, A. *J Am Acad Dermatol* 2006; **54**:440-7.	Morphoea/ scleroderma	RCT (n=64); included in Zwischenberger, *J Am Acad Dermatol* 2011; **65**:925-41.
Kural, Y. *J Eur Acad Dermatol Venereol* 2006; **20**:104-5.	MF/CTCL	Non-comparative (n=23): See appendix J.2.1.
Kuroda, K. *Eur J Dermatol* 2017; **27**:537-9.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Kuwano, Y. *Int J Dermatol* 2006; **45**:1265-7.	Eosinophilic pustular follocuilitis	Case report: see appendix O.11.1.1.
Kwah, Y. C. *Photodermatol Photoimmunol Photomed* 2010; **26**:153-5.	Macular hypomelanosis	Non-comparative (n=6): See appendix O.3.2.2.
Laws, P. M. *Pediatr Dermatol* 2014; **31**:459-64.	MF/CTCL/ parapsoriasis	Non-comparative (n=28): See appendix J.2.1.
Lee, J. *J Am Acad Dermatol* 2008; **59**:706-12.	Pagetoid reticulosis	Non-comparative (n=7) none treated with NB-UVB
Li, A. *Hum Vaccin Immunother* 2018; **14**:1024-6.	Pityriasis rosea	Case report: See appendix O.9.2.1.

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Reference	Disease	Reason for Exclusion
Lim, H. L. *Photodermatol Photoimmunol Photomed* 2012; **28**:219-21.	Eosinophilic pustular follocuilitis	Case report: see appendix O.11.1.1.
Logemann, N. *Dermatol Online J* 2013; **19**:20031.	Histiocytosis	Case report: see appendix O.11.1.1.
Ma, L. *J Clin Dermatol* 2008; **37**:51-3.	MF/CTCL/ parapsoriasis	In Chinese: full text not obtained, summarized from abstract: No comparator (n=16): See appendix J.2.1.
Madkan, V. K. *J Dermatolog Treat* 2005; **16**:56-7.	Pruritus	Case report: See appendix M.2.2.
Mariaca-Flórez, C. J. *Dermatol Rev Mex* 2017; **61**:115-36.	MF/CTCL	In Spanish, not systematic, checked for references, none identified.
Massa, A. *Indian J Dermatol Venereol Leprol* 2015; **81**:435.	Pityriasis rubra pilaris	Case report: see appendix O.11.1.1.
Matsuki, S. *Nishinihon J Dermatol* 2014; **76**:447-53.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Matsuzaki, Y. *J Dermatol* 2017; **44**:721-2.	Perforating collagenosis/Kyrle disease	Case report: See appendix O.8.2.2.
Meola, T. *J Am Acad Dermatol* 1993; **29**:216-20.	Pruritus	Case report: See appendix M.2.2.
Mii, S. *Acta Derm Venereol* 2009; **89**:530-1.	Perforating collagenosis/Kyrle disease	Case report: See appendix O.8.2.2.
Mikami, E. *J Dermatol* 2016; **43**:975-7.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Mizuno, K. *Dermatol Ther* 2014; **27**:233-5.	Hailey-Hailey disease	Case report: see appendix O.11.1.1.
Montero, L. C. *Photodermatol Photoimmunol Photomed* 2011; **27**:162-3.	Macular hypomelanosis	Case report: See appendix O.3.2.3.
Mori, M. *J Am Acad Dermatol* 2004; **50**:943-5.	MF/CTCL/ parapsoriasis	Non-comparative (n=4): See appendix J.2.1.
Morsy, H. *J Cosmet Dermatol* 2018; **17**:533-7.	Alopecia areata	No outcomes of interest
Moutran, R. *Int J Dermatol* 2015; **54**:e271-3.	Netherton's syndrome	Case report: see appendix O.11.1.1.
Muylaert, B. P. B. *An Bras Dermatol* 2017; **92**:82-4.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Nabarawy, E. E. *Indian J Dermatol* 2011; **56**:44-7.	Postherpetic neuralgia	Postherpetic neuralgia: outside scope
Nakai, K. *J Eur Acad Dermatol Venereol* 2009; **23**:844-6.	Poikiloderma vasculare atrophicans	Case report: see appendix O.11.1.1.
Nakamizo, S. *Eur J Dermatol* 2010; **20**:816-7.	Lichen nitidus	Case report: see appendix O.11.1.1.
Nakayama, M. *Eur J Dermatol* 2016; **26**:208-9.	Graft vs host disease	Case report: see appendix O.2.2.1.
Nanda, A. *Am J Dermatopathol* 2013; **35**:503-6.	Pityriasis lichenoides	Case report: included in Maranda, E. L. *Am J Clin Dermatol* 2016; **17**:583-91.

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Reference	Disease	Reason for Exclusion
Ness, M. J. *Pediatr Dermatol* 2014; **31**:e10-2.	Histiocytosis	Case report: see appendix O.11.1.1.
Newland, K. *Australas J Dermatol* 2012; **53**:136-8.	Morphoea/scleroderma	Case report: See appendix O.5.2.2.
Nikolaou, V. *Photodermatol Photoimmunol Photomed* 2018; **34**:307-13.	MF/CTCL	Comparative: included in Phan, *JAMA Dermatol* 2019; **155**:335-341.
Oba-Okada, J. *Nishinihon J Dermatol* 2009; **71**:192-200.	Various skin disorders	In Japanese
Ohe, S. *J Am Acad Dermatol* 2004; **50**:892-4.	Perforating dermatosis	Non-comparative (n=5): see appendix O.8.2.1.
Ohtsuka, T. *Eur J Dermatol* 2008; **18**:464-6.	CTCL/CBCL/MF	Non-comparative (n=8): see appendix J.2.1
Oiso, N. *Clin Exp Dermatol* 2009; **34**:e833-6.	Lichen amyloidosis	Case report: see appendix O.11.1.1.
Olsen, E. A. *J Am Acad Dermatol* 2016; **74**:27-58.	MF/CTCL	Not systematic, checked for references, one identified
Orton, D. I. *Br J Dermatol* 1997; **137**:149-61.	Subcorneal pustular dermatosis	Case report: see appendix O.11.1.1.
Özdemir, M. *J Eur Acad Dermatol Venereol* 2009; **23**:1453-4.	ILVEN + psoriasis	Case report: see appendix O.11.1.1.
Ozden, M. G. *Photodermatol Photoimmunol Photomed* 2010; **26**:162-4.	Psychogenic excoriation	Case series: see appendix O.11.1.1.
Park, H. S. *Korean J Dermatol* 2005; **43**:1113-5.	Nodular prurigo	In Korean, unable to obtain full text. Case report, summarized from abstract: See appendix L.2.2.
Park, J.-H. *J Am Acad Dermatol* 2006; **54**:545-6.	Lichen nitidus	Case report: see appendix O.11.1.1.
Parsi, K. *Int J Dermatol* 2004; **43**:925-8.	Lichen amyloidosis	Case report: see appendix O.11.1.1.
Pasić, A. *Pediatr Dermatol* 2003; **20**:71-7.	Pityriasis lichenoides	No comparator (pityriasis lichenoides n=9) included in Maranda, E. L. *Am J Clin Dermatol* 2016; **17**:583-91.
Patruno, C. *Ann Ital Dermatol Allergol Clin Sper* 2003; **57**:38-40.	Allergic contact dermatitis	n<10
Pavlotsky, F. *J Am Acad Dermatol* 2019; **80**:1550-5.	MF/CTCL/ parapsoriasis	Non-comparative (n=117) See appendix J.2.1.
Pavlotsky, F. *J Eur Acad Dermatol Venereol* 2006; **20**:565-72.	MF/CTCL	Comparative (n=111), but comparator outside scope: (n=68): See appendix J.2.1.
Pavlovsky, M. *Dermatol Ther* 2016; **29**:152-4.	Granuloma annulare	Non-comparative (n=13); See appendix O.6.2.1.
Pérez-Pérez, L. *J Eur Acad Dermatol Venereol* 2010; **24**:730-2.	Notalgia paraesthetica	Non-comparative (n=5); See appendix O.7.2.1.
Pirkhammer, D. *Br J Dermatol* 2000; **143**:964-8.	Seborrhoeic dermatitis	Non-comparative (n=18); See appendix O.10.2.1.
Ponte, P. *J Eur Acad Dermatol Venereol* 2010; **24**:716-21.	MF/CTCL	Comparative: included in Phan, *JAMA Dermatol* 2019; **155**:335-341.
Prignano, F. *Clin Exp Dermatol* 2010; **35**:914-5.	Mastocytosis	Non-comparative (n=7): See appendix O.4.2.1.
Rassai, S. *J Cutan Aesthet Surg* 2014; **7**:151-4.	Acne vulgaris	RCT (n= 104) data not in extractable format.
Reed, J. *Br J Dermatol* 1999; **141**:177-9.	Pruritic folliculitis of pregnancy	Case report: see appendix O.11.1.1.

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Reference	Disease	Reason for Exclusion
Reuter, J. *Hautarzt* 2007; **58**:146-8.	Erythema annulare centrifugum	Case report: see appendix O.11.1.1.
Rodney, I. J. *J Eur Acad Dermatol Venereol* 2017; **31**:808-14.	MF/CTCL/ parapsoriasis	Non-comparative (n=20): See appendix J.2.1.
Sadick, N. S. *J Cosmet Laser Ther* 2007; **9**:79-83.	Striae alba	Striae alba: outside scope.
Saleky, S. *Cutis* 2017; **99**:431-5.	Vitamin D balance	Vitamin D balance: outside scope.
Salman, A. *Dermatol Online J* 2016; **22**.	Pityriasis lichenoides	Case report: See appendix K.2.2.
Samson Yashar, S. *Photodermatol Photoimmunol Photomed* 2003; **19**:164-8.	Pruritus	Non-comparative (n=117, including 6 generalised pruritis, 4 lichen planus, 3 pityriasis lichenoides, 3 prurigo) See appendix I.2.1, K.2.1, L.2.1 & M.2.1.
Saraç, E. *Marmara Med J* 2011; **24**:82-7.	Pityriasis lichenoides	In Turkish. No comparator (n=25): summarized from abstract: See appendix K.2.1.
Saricaoğlu, H. *Photodermatol Photoimmunol Photomed* 2003; **19**:265-7.	Lichen planus	Included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.
Satchell, A. C. *Australas J Dermatol* 2001; **42**:284-7.	Perforating collagenosis/Kyrle disease	Case report: See appendix O.8.2.2.
Schmieder, A. *J Am Acad Dermatol* 2013; **69**:e312-4.	Eosinophilic pustular follocuilitis	Case report: see appendix O.11.1.1.
Sehgal, V. N. *Pediatr Dermatol* 2013; **30**:762-4.	Perforating collagenosis/Kyrle disease	Case report: See appendix O.8.2.2.
Seckin, D. *Int J Dermatol* 2007; **46**:367-70	Pruritus	Non-comparative (n=46); See appendix M.2.1.
Seo, P.-S. *Korean J Dermatol* 2006; **44**:55-8.	Histiocytosis	Case report: see appendix O.11.1.1.
Sim, J. H. *J Eur Acad Dermatol Venereol* 2011; **25**:1318-23.	Progressive macular hypomelanosis	Within-patient RCT (n=10): See appendix O.3.2.1.
Solak, B. *Cutan Ocul Toxicol* 2016; **35**:190-3.	Lichen planus	Non-comparative (n=24); See appendix I.2.1.
Solano-López, G. *Actas Dermosifiliogr* 2015; **106**:240-1.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Someshwar, S. *Indian Pediatr* 2012; **49**:936-7.	Pityriasis lichenoides	Case report: Included in Maranda, E. L. *Am J Clin Dermatol* 2016; **17**:583-91.
Sorenson, E. *JAMA Dermatol* 2015; **151**:635-7.	Graft vs host disease	Case report: See appendix O.2.2.2.
Takata, T. *Dermatology* 2006; **212**:77-9.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Tamagawa-Mineoka, R. *J Dermatol* 2007; **34**:691-5.	Nodular prurigo	No comparator (n=10): See appendix L.2.1.
Tan, E. *Australas J Dermatol* 2010; **51**:268-73.	Dermatosis (children)	No comparator (pityriasis lichenoides n=4) included in Maranda, E. L. *Am J Clin Dermatol* 2016; **17**:583-91.
Taneja, A. *Int J Dermatol* 2002; **41**:282-3.	Lichen planus	Included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70.

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Reference	Disease	Reason for Exclusion
Tlougan, B. E. *Dermatol Online J* 2010; **16**:17.	Erythema dyschromicum perstans	Case report: see appendix O.11.1.1.
Tomb, R. *Ann Dermatol Venereol* 2008; **135**:835-8.	Keratosis lichenoides chronica	Case report: see appendix O.11.1.1.
Vähävihu, K. *Br J Dermatol* 2010; **162**:848-53.	Vitamin D balance	Vitamin D balance: outside scope
Vanderbeck, K. A. *Dermatol Rep* 2014; **6**:21-3.	Hailey-Hailey disease	Case report: see appendix O.11.1.1.
Vergilis-Kalner, I. J. *J Drugs Dermatol* 2009; **8**:270-3.	Pityriasis rubra pilaris	**Unable to obtain full text**, done from abstract: Case report: see appendix O.11.1.1.
Verma, P. *Pediatr Dermatol* 2013; **30**:e291-2.	Pigmented purpuric dermatosis/Schamberg's disease	Case report: see appendix O.11.1.1.
Wackernagel, A. *Photodermatol Photoimmunol Photomed* 2007; **23**:15-9.	Lichen planus	Included in Atzmony, *Am J Clin Dermatol* 2016; **17**:11-22 & Fazel *J Dermatolog Treat* 2015; **26**:280-3.
Wang, T. *Zhonghua Zhong Liu Za Zhi* 2014; **36**:626-8.	MF/CTCL	In Chinese
Wu, X.-G. *J Dermatolog Treat* 2010; **21**:367-8.	Macular hypomelanosis	Case report: See appendix O.3.2.3.
Xiao, T. *Eur J Dermatol* 2008; **18**:660-2.	MF/CTCL/ parapsoriasis	Non-comparative (n=8); see appendix J.2.1
Xiao, T. *J Dermatol* 2007; **34**:270-2.	Scleredema of buschke	Case report: see appendix O.11.1.1.
Yanaba, K. *J Dermatol* 2016; **43**:229-30.	Cutaneous plasmacytosis	Case report: see appendix O.11.1.1.
Yatsuzuka, K. *J Dermatol* 2018; **45**:479-82.	Graft vs host disease	Case report: See appendix O.2.2.2.
Yazganoglu, K. D. *J Eur Acad Dermatol Venereol* 2013; **27**:295-300.	MF/CTCL/ parapsoriasis	Non-comparative (n=20); see appendix J.2.1.
Yokoyama, Y. *Skin Research* 2010; **9**:141-6.	Papuloerythroderma	Case report: see appendix O.11.1.1.
Yong, A. *Photodermatol Photoimmunol Photomed* 2016; **32**:107-9.	Necrobiosis lipoidica like/granuloma annulare*/giant cell granuloma	Case report: See appendix O.6.2.2.
Yoshimura, J. *Mod Rheumatol* 2016; **26**:302-6.	Scleredema of buschke	Case report: see appendix O.11.1.1.
Zeichner, J. A. *Arch Dermatol* 2011; **147**:537-9.	Acne (pregnancy)	Case report: see appendix O.11.1.1.

S.6: Photodermatoses

Reference	Disease	Reason for exclusion
Calzavara-Pinton, P. *J Am Acad Dermatol* 2012; **67**:e5-9.	solar urticaria	Non-comparative (n=39; See appendix P.2.1.
Cameron, H. *Public Health* 2014; **128**:317-24.	photodermatosis	Non-comparative (n=398 courses: 7% for photodermatosis): no extractable data
Collins, P. *Br J Dermatol* 1995; **132**:956-63.	photodermatosis: actinic prurigo (6), hydroa vacciniforme (4), idiopathic solar urticaria (1), amiodarone-induced photosensitivity (1) and a range of cutaneous porphyrias (8)	Non-comparative (n=20): included in Gambichler, *J Am Acad Dermatol* 2005; **52**:660-70 but only refers to actinic prurigo (n=6) specifically: See appendices P.2.

Combalia, A. *Actas Dermosifiliogr* 2017; **108**:752-7.	polymorphic light eruption	Non-comparative (n=15; 24 courses): See appendix P.2.1.
Dummer, R. *Dermatology* 2003; **207**:93-5.	polymorphic light eruption	Patients (n=25) who failed combination UVA/UVB were then tried on NB-UVB (n=10): See appendix P.2.1.
Garcia-Martin, P. *Photodermatol Photoimmunol Photomed* 2012; **28**:261-3.	erythropoietic protoporphyria	Case report: See appendix P.2.2.
Gupta, G. *J Am Acad Dermatol* 2000; **42**:208-13.	hydroa vacciniforme	Non-comparative (n=17): See appendix P.2.1.
Jury, C. S. *Clin Exp Dermatol* 2006; **31**:196-9.	polymorphic light eruption (3), hydroa vacciniforme (2)	Non-comparative (n=5): See appendix p.2.1.
Khaled, A. *Therapie* 2011; **66**:453-7.	actinic dermatitis	Case reports (n=2): See appendix P.2.2.
Ma, L. *Dermatol Ther* 2017; **30**.	actinic dermatitis	Non-comparative (n=19); See appendix P.2.2.
Samson Yashar, S. *Photodermatol Photoimmunol Photomed* 2003; **19**:164-8.	polymorphic light eruption (7)	Non-comparative (n=117, including 7 polymorphic light eruption). Results not reported.
Sivaramakrishnan, M. *Br J Dermatol* 2014; **170**:987-8.	erythropoietic protoporphyria	Non-comparative (n=12): See appendix P.2.2.
Warren, L. J. *Australas J Dermatol* 1998; **39**:179-82.	erythropoietic protoporphyria	Case report: See appendix P.2.2.
Wolf, R. *Clin Exp Dermatol* 2013; **38**:446-7.	solar urticaria	Case report: See appendix P.2.2.

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Appendix T: Methodology

Developing the review questions and outcomes

Review questions were developed using the PICO framework (patient, intervention, comparison and outcome) for intervention reviews. The use of this framework guided the literature searching process, critical appraisal and synthesis of evidence, and facilitated the development of recommendations by the GDG. The review questions were drafted by the technical team and refined and validated by the GDG. The questions were based on the key clinical areas.

A total of two systematic review questions were identified (see Appendix A).

Full literature searches, critical appraisals and evidence reviews were completed for these review questions.

Searching for evidence

Clinical literature search

Systematic literature searches were undertaken to identify the published clinical evidence relevant to the review questions; these were undertaken according to the parameters stipulated within the protocols. Databases were searched using relevant medical subject headings (MeSH), free-text terms and study-type filters, where appropriate. All searches were conducted in PubMed, MEDLINE, EMBASE and Cochrane databases to identify key articles relevant to the questions. The search for all questions was completed 1st August 2018 and will be updated Xth month 2021 to ensure recommendations remain current to the best available evidence; search terms and strategies are detailed in Appendix V.

Identifying and appraising evidence of effectiveness

The technical team identified potentially relevant studies for the review question from the search results by reviewing the titles. Two members of the GDG then reviewed the abstracts of these studies using the inclusion/exclusion criteria in the systematic review protocol(s). Full papers were then obtained for those agreed as potentially relevant.

The full papers were then reviewed against the inclusion/exclusion criteria in the systematic review protocol(s) to identify studies that addressed the review question.

The studies were critically appraised using the appropriate study design checklists as specified in Developing NICE guidelines: the manual.[392]

Inclusion and exclusion criteria

The inclusion and exclusion of studies was based on the criteria defined in the review protocols, which can be found in Appendix A. Excluded studies by review question (with the reasons for their exclusion) are listed in Appendix S. The GDG was consulted about any uncertainty regarding inclusion or exclusion.

Type of studies

See relevant systematic review protocols (Appendix A).

Type of analysis

Relevant data were extracted from the studies using the Review Manager (RevMan) 5.3 software package.[393] Fixed-effects (Mantel-Haenszel) techniques (using an inverse variance

method for pooling) were used to calculate the risk ratios (relative risk). The absolute risk difference was also calculated using GRADEprofiler 3.6 software package,[394] using the event rate in the control arm of the results.

When possible, meta-analyses were conducted to combine the data given in all studies for each of the outcomes of interest for the review question (see Appendix A).

Where relevant, the GDG specified that certain data should be stratified, meaning that studies that varied on a particular factor were not combined and analysed together. Where stratification was used, this is documented in the individual systematic review protocols (see Appendix A).

Appraising the quality of the evidence by outcomes

The evidence for outcomes from the included randomized controlled trials (RCTs) was evaluated and presented using an adaptation of the 'Grading of Recommendations Assessment, Development and Evaluation (GRADE) toolbox' developed by the international GRADE working group (www.gradeworkinggroup.org/). The software was used to assess the quality of each outcome, considering individual study quality and the meta-analysed results.

Each outcome was first examined for each of the quality elements listed and defined in Table T.1.

Table T.1: Description of quality elements in GRADE for intervention studies

Quality element	**Description**
Risk of bias *(i.e. study limitations)*	Limitations in the study design and implementation may bias the estimates of the treatment effect. Major limitations in studies decrease the confidence in the estimate of the effect. Examples of such limitations are selection bias (often due to poor allocation concealment), performance and detection bias (often due to a lack of blinding of the patient, healthcare professional and assessor) and attrition bias (due to missing data causing systematic bias in the analysis).
Indirectness	Indirectness refers to differences in study population, intervention, comparator and outcomes between the available evidence and the review question.
Inconsistency	Inconsistency refers to an unexplained heterogeneity of effect estimates between studies in the same meta-analysis.
Imprecision	Results are imprecise when studies include relatively few patients and few events (or highly variable measures) and thus have wide confidence intervals around the estimate of the effect relative to clinically important thresholds. The 95% confidence intervals denote the possible range of locations of the true population effect at a 95% probability, and so wide confidence intervals may denote a result that is consistent with conflicting interpretations (for example, a result may be consistent with both clinical benefit AND clinical harm) and thus, be imprecise.
Publication bias	Publication bias is a systematic under/overestimation of the underlying beneficial or harmful effect due to the selective publication of studies. A closely related phenomenon is where some papers fail to report an outcome that is inconclusive, thus leading to an over-estimate of the effectiveness of that outcome.
Other issues	Sometimes, randomization may not adequately lead to group equivalence of confounders, and if so this may lead to bias, which should be

	considered. Potential conflicts of interest, often caused by excessive pharmaceutical company involvement in the publication of a study, should also be noted.

Details of how the four main quality elements (risk of bias, indirectness, inconsistency and imprecision) were appraised for each outcome are given below. Publication or other biases were only taken into consideration in the quality assessment if it was apparent.

a) Risk of bias

The key domains of bias for RCTs are listed in Table T.2. Each outcome had its risk of bias assessed within each paper first. For each outcome, if there were no issues with any of the domains, the risk of bias was given a rating of "0". If there were issues with just one domain, the risk of bias was given a "serious" rating of "-1", but if there was risk of bias in two or more domains the risk of bias was given a 'very serious' rating of -2. A weighted average score was then calculated across all studies contributing to the outcome, by considering the weighting of studies according to study precision.

Table T.2: Principle domains of bias in randomized controlled trials

Limitation	Explanation
Selection bias – sequence generation and allocation concealment	If those enrolling patients are aware of the group to which the next enrolled patient will be allocated, either because of a non-random sequence that is predictable, or because a truly random sequence was not concealed from the researcher, this may translate into systematic selection bias. This may occur if the researcher chooses not to recruit a participant into that specific group because of 1) knowledge of that participant's likely prognostic characteristics and 2) a desire for one group to do better than the other.
Performance and detection bias – lack of patient and healthcare professional blinding	Patients, care-givers, those adjudicating and/or recording outcomes, and data analysts should not be aware of the arm to which patients are allocated. Knowledge of group can influence 1) the experience of the placebo effect, 2) performance in outcome measures, 3) the level of care and attention received, and 4) the methods of measurement or analysis, all of which can contribute to systematic bias.
Attrition bias	Attrition bias results from loss of data beyond a certain level (a differential of 10% between groups) which is not accounted for. Loss of data can occur when participants are compulsorily withdrawn from a group by the researchers (for example, when a per-protocol approach is used) or when participants do not attend assessment sessions. If the missing data are likely to be different from the data of those remaining in the groups, and there is a differential rate of such missing data from groups, systematic attrition bias may result.
Selective outcome reporting	Reporting of some outcomes and not others on the basis of the results can also lead to bias, as this may distort the overall impression of efficacy.
Other limitations	For example: Stopping early for benefit observed in randomized trials, particularly in the absence of adequate stopping rules Use of unvalidated patient-reported outcomes Lack of washout periods to avoid carry-over effects in crossover trials Recruitment bias in cluster randomized trials

b) Inconsistency

Inconsistency refers to an unexplained heterogeneity of results for an outcome across different studies. When estimates of the treatment effect across studies differ widely, this suggests true differences in underlying treatment effect, which may be due to differences in populations, settings or doses. When heterogeneity existed within an outcome (Chi square $p<0.1$ or I^2 inconsistency statistic of >50%), but no plausible explanation could be found, the quality of evidence for that outcome was downgraded. Inconsistency for that outcome was given a 'serious' score of "-1" if the I^2 was 50-74%, and a 'very serious' score of "-2" if the I^2 was 75% or more.

If inconsistency could be explained based on pre-specified subgroup analysis (that is, each subgroup had an $I^2 < 50$), the GDG took this into account and considered whether to make separate recommendations on new outcomes based on the subgroups defined by the assumed explanatory factors. In such a situation, the quality of evidence was not downgraded for those emergent outcomes.

Since the inconsistency score was based on the meta-analysis results, the score represented the whole outcome and so weighted averaging across studies was not necessary.

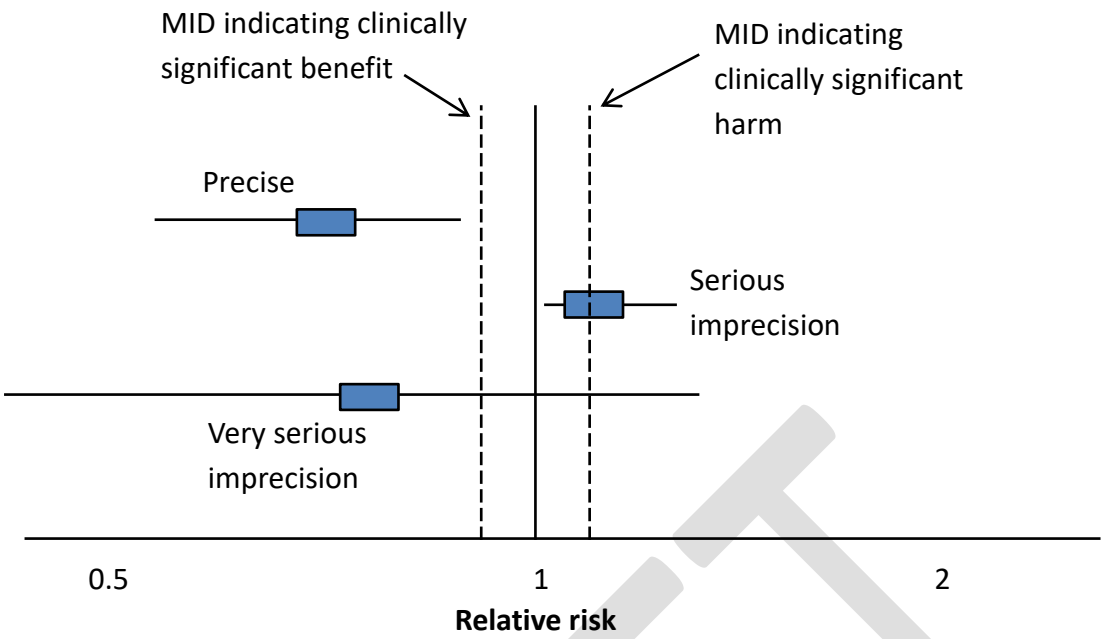
c) Indirectness

Indirectness refers to the extent to which the populations, interventions, comparisons and outcome measures are dissimilar to those defined in the inclusion criteria for the reviews. Indirectness is important when these differences are expected to contribute to a difference in effect size or may affect the balance of harms and benefits considered for an intervention. As for risk of bias, each outcome had its indirectness assessed within each paper first. For each paper, if there were no sources of indirectness, this was given a rating of 0. If there was indirectness in just one source (for example in terms of population), indirectness was given a 'serious' rating of -1, but if there was indirectness in two or more sources (for example, in terms of population and treatment) the indirectness was given a 'very serious' rating of -2. A weighted average score was then calculated across all studies contributing to the outcome, by taking into account study precision. For example, if the most precise studies tended to have an indirectness score of -1 each for that outcome, the overall score for that outcome would probably tend towards -1.

d) Imprecision

The criteria applied for imprecision were based on the confidence intervals for the pooled estimate of effect, and the minimal important differences (MID) for the outcome. The MIDs are the threshold for appreciable benefits and harms, separated by a zone either side of the line of no effect where there is assumed to be no clinically important effect. For categorical/dichotomous outcomes, if either of the 95% confidence intervals of the overall estimate of effect crossed one of the MID lines, imprecision was regarded as serious and a 'serious' score of -1 was given. This was because the overall result, as represented by the span of the confidence intervals, was consistent with two interpretations as defined by the MID (for example, no clinically important effect and either clinical benefit or harm). If both MID lines were crossed by either or both the confidence intervals, then imprecision was regarded as very serious and a 'very serious' score of -2 was given. This was because the overall result was consistent with three interpretations defined by the MID (no clinically important effect and clinical benefit and clinical harm). This is illustrated in Figure T.1.

Figure T.1: Illustration of precise and imprecise outcomes



The position of the MID lines is ideally determined by values as reported in the literature. "Anchor-based" methods aim to establish clinically meaningful changes in a continuous outcome variable by relating or "anchoring" them to patient-centred measures of clinical effectiveness that could be regarded as gold standards with a high level of face validity. For example, the minimum amount of change in an outcome necessary to make a patient decide that they felt their quality of life had "significantly improved" might define the MID for that outcome (e.g. DLQI ≥4 for psoriasis). MIDs in the literature may also be based on expert clinician or consensus opinion concerning the minimum amount of change in a variable deemed to affect quality of life, or health. For categorical/dichotomous variables, any MIDs reported in the literature will inevitably be based on expert consensus, as such MIDs relate to all-or-nothing population effects rather than measurable effects on an individual, as so are not amenable to patient-centred "anchor" methods.

In the absence of literature values, the alternative approach to deciding on MID levels is the "default" method, as follows:

For categorical/dichotomous outcomes, the MIDs are taken as RRs of 0.75 and 1.25. For 'positive' outcomes such as 'patient satisfaction', the RR of 0.75 is taken as the line denoting the boundary between no clinically important effect and a clinically significant harm, whilst the RR of 1.25 is taken as the line denoting the boundary between no clinically important effect and a clinically significant benefit. For 'negative' outcomes such as 'bleeding', the opposite occurs, so the RR of 0.75 is taken as the line denoting the boundary between no clinically important effect and a clinically significant benefit, whilst the RR of 1.25 is taken as the line denoting the boundary between no clinically important effect and a clinically significant harm. No appropriate MIDs for the outcomes were found in the literature and the GDG agreed that the default MID was appropriate.

Grading the quality of clinical evidence

Once an outcome had been appraised for the main quality elements, an overall quality grade was calculated for that outcome. The scores from each of the main quality elements (0, -1 or -2) were summed to give a score that could be anything from 0 (the best possible) to -3 (the worst possible, as scores were capped at -3). This final score was then added to the starting grade that had originally been applied to the outcome by default, based on study design.

For example, all RCTs start as 'HIGH' (0 points) and the overall quality became 'MODERATE', 'LOW' or 'VERY LOW' if the overall score was -1, -2 or -3 points, respectively. The significance of these overall ratings is explained in Table T.3. The reasons used for downgrading were specified in the footnotes of the GRADE tables. On the other hand, observational interventional studies started at 'LOW', and so a score of -1 would be enough to take the grade to the lowest level of 'VERY LOW'. Observational studies could, however, be upgraded if there was: a large magnitude of effect, a dose-response gradient, and if all plausible confounding would reduce a demonstrated effect, as long as they had not been downgraded already due to risk of bias.

Table T.3: Overall quality of outcome evidence in GRADE

Level	Description
High	Further research is very unlikely to change our confidence in the estimate of effect
Moderate	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate
Low	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate
Very low	Any estimate of effect is very uncertain

For each comparison, e.g. drug A vs. placebo, the quality of the body of evidence is determined by the majority of the quality ratings amongst the ***critical*** outcomes; these are featured in the LETR table (Appendix C).

Practical and economic considerations

Where relevant, cross-references were made to NICE guidance and associated health economic evaluation. Drug acquisition costs, resource use and practical considerations based on the experience of the GDG were also considered. Formal health economic analyses were not performed.

Developing recommendations

Over the course of the guideline development process, the GDG was presented with:

- Summaries of the clinical evidence and quality (Appendix D)
- Evidence tables of the reviewed literature (Appendices E, F, G, H, I, J, K, L, M, N, O, & P)
- Forest plots (Appendix B)

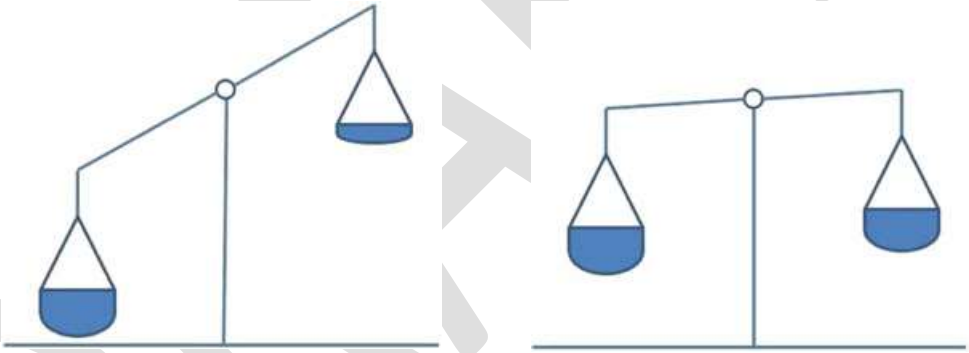
Recommendations were drafted based on the GDG's interpretation of the available evidence, taking into account the balance of benefits, harms, costs between different courses of action and patient values and preferences. The clinical benefit over harm (clinical effectiveness) focused on the ***critical*** outcomes when one intervention was compared with another. The assessment of net clinical benefit was moderated by the importance placed on the outcomes (the GDG's, and patient values and preferences), and the confidence the GDG had in the evidence (evidence quality). The GDG assessed whether the net clinical benefit justified any differences in costs between the alternative interventions.

When clinical evidence was of poor quality, conflicting or absent, the GDG drafted recommendations based on its expert opinion. The considerations for making consensus-based recommendations include the balance between potential harms and benefits, practical and economic considerations, current practices, recommendations made in other relevant guidelines, patient preferences and equality issues. The consensus recommendations were agreed through discussions in the GDG. The GDG also considered whether the uncertainty

was sufficient to justify delaying making a recommendation to await further research, taking into account the potential harm of failing to make a clear recommendation (see ***Future research recommendations (FRRs)*** Appendix C).

The GDG considered the appropriate 'strength' of each recommendation. This took into account the quality of the evidence but is conceptually different. Some recommendations are 'strong' (↑↑) in that the GDG believes that the vast majority of healthcare and other professionals and patients would choose a particular intervention if they considered the evidence in the same way that the GDG has. This is generally the case if the benefits clearly outweigh the harms for most people (see Figure T.2a) and the intervention is likely to be cost-effective. However, there is often a closer balance between benefits and harms (see Figure T.2b), and some patients would not choose an intervention whereas others would. This may happen, for example, if some patients are particularly averse to some side effects and others are not. For clinicians, this indicates the need to consider the pros/cons for the patient in context of the evidence and that variation in practice is expected. In these circumstances, the recommendation is generally weaker (↑), although it may be possible to make stronger recommendations about specific groups of patients, or when experience and expertise in the GDG called for it despite the weaker evidence (e.g. when certain interventions are well established in clinical practice with no recent high-quality RCTs, or when conducting an RCT would be unethical).

Figure T.2: Illustration for (a) strong and (b) weak recommendations



(a) Strong recommendations (b) Weak recommendations

For patients	Most people in this situation would want the recommended course of action and only a small proportion would not	Most people in this situation would want the suggested course of action, but many would not
For clinicians	Most people should receive the intervention	Consider pros/cons for patient in context of the evidence
For quality monitors	Useful as a performance indicator	Poor indicator (variability in practice expected)

The GDG focused on the following factors in agreeing the wording of the recommendations:

- The actions healthcare professionals need to take
- The information readers need to know
- The strength of the recommendation (for example the words 'Offer', 'Assess', 'Advise', 'Discuss', etc. were used for strong recommendations and 'Consider' for weaker recommendations)
- The involvement of patients (and their carers if needed) in decisions on treatment and care

The main considerations specific to each recommendation are outlined in the LETR table(s) (Appendix C).

Future research recommendations (FRRs)

Where areas were identified for which good evidence was lacking, the GDG considered making recommendations for future research. Decisions about the inclusion of a research recommendation were based on factors such as:

- the importance to patients or the population
- national priorities
- potential impact on the NHS and future guidance
- ethical and technical feasibility

Validation process

The draft document was made available for a 1-month consultation to all relevant stakeholders identified by the GDG, including healthcare professionals and patient support groups. All comments were reviewed by the GDG and the recommendations were revised if appropriate (for example, in light of important new evidence or other considerations not previously considered by the GDG). Following further review, the finalized version was peer-reviewed by the Clinical Standards Unit of the BAD (which includes the Therapy & Guidelines sub-committee) prior to submission to the British Journal of Dermatology.

Funding

Development of this guideline has been funded independently by the BAD.

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Appendix U: Light sources and dosimetry

The most common light source for NB-UVB is the fluorescent lamp. Developed in the early 1980's and commercially available by 1988, the first fluorescent NB-UVB phototherapy lamp produced was the Philips TL01 (TL = Therapy Lamp).[224,294,395-397] Although NB-UVB phototherapy lamps are produced by other manufacturers, NB-UVB phototherapy is often referred to as TL01 phototherapy.[396] Fluorescent NB-UVB phototherapy lamps have an emission spectrum which peaks between 310 nm and 311 nm with a 2 nm bandwidth at full-width half maximum (FWHM), although there will be variation between phosphors used by different manufacturers resulting in slight variation in lamp spectra. For this reason it is important that the model and manufacturer of the lamp is known and reported in published literature.

To deliver ultraviolet phototherapy to large body surface areas it is common for multiple NB-UVB phototherapy lamps to be integrated into quasi-cylindrical cabinets, approximately 2 m in height with a 1.3 m diameter. In this 'wholebody' configuration, the occupant exposes as much of their skin to the NB-UVB radiation as clinically required whilst also protecting the eyes[398] The aim of these phototherapy cabinets is to uniformly irradiate the occupant with high irradiance (4 – 10 mW/cm^2) NB-UVB radiation in order to minimise the treatment duration.[85] However delivering equal quantities of radiation to all body areas can be difficult to achieve.[399] Due to capital cost and the multi-disciplinary needs of a phototherapy service, delivery of whole body NB-UVB phototherapy is predominantly limited to a hospital-based setting. However home phototherapy utilising smaller, but still whole body, irradiation systems is reported to be as safe and effective as outpatient therapy as well as cost effective.[239,252,400]

For smaller treatment areas and for minimum erythemal dose testing,[401,402] NB-UVB fluorescent lamps are available in a range of different sizes, from 29 mm to 2 m in length. These fluorescent lamps have been incorporated into devices for localised ultraviolet phototherapy, where specific body sites (for example scalp, hands and feet) are illuminated. Localised treatment has the advantage of minimising ultraviolet radiation exposure to non-affected skin.

More precise targeting of NB-UVB phototherapy can also be achieved without the use of fluorescent lamps. A range of devices are available which aim to deliver small area illumination and emulate the NB-UVB radiation emitted by the fluorescent lamp.[403-405] In general targeted UV phototherapy systems deliver much higher irradiance and higher overall radiant exposure (dose) than fluorescent NB-UVB.[406]The most common of targeted UV phototherapy sources are the xenon chloride excimer laser and excimer lamp.[115,407] The excimer laser emits pulsed, monochromatic, coherent ultraviolet radiation at 308 nm whereas the excimer lamp is incoherent and has a broader wavelength range of typically 306 nm to 310 nm.[408] The treatment areas are smaller (typically less than 2 cm^2)[409] which minimises the exposure of non-affected skin but also limits the area that can practically be covered during a treatment session.

Regardless of the method of illumination (excimer laser or fluorescent lamp), accurate dosimetry is critical for efficient treatment delivery. The measurement techniques vary depending upon the NB-UVB source but the quantity of ultraviolet radiation received is generally known as the 'dose' (radiant exposure - energy per unit area falling on the skin surface), which in fluorescent lamp NB-UVB phototherapy is calculated from the Designated

Patient Irradiance (power per unit area falling on the skin surface) and the exposure time. Determination of the Designated Patient Irradiance and accurate measurement of ultraviolet radiation in phototherapy are documented in published guidelines.[257,410] Ultraviolet phototherapy cabinets often have irradiance detectors within them, which monitor the ultraviolet radiation and allow a dose (J/cm^2) to be programmed directly into the unit, with exposure time (seconds) calculated automatically. An alternative system is to independently measure irradiance (mW/cm^2), which then allows direct input of exposure time to the phototherapy cabinet controls. Whichever method of dose delivery system is used, dose or time, it is important that, as part of a quality assurance system, there are regular quality control measurements performed on the cabinet to ensure accuracy and consistency of the ultraviolet dose delivered. Accurate measurement is required for employee safety, in order to compare anticipated occupational exposure to Exposure Limit Values (ELVs). This is completed as part of a risk assessment as required by the control of artificial optical radiation at work regulations 2010.[256]

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Appendix V: Search strategy

PubMed (1966- current + selective coverage back to 1865) search carried out on 01.08.2018

Search no.	Keywords
1	meta-analys* OR “systematic review*” OR controlled clinical trials, randomized [MeSH Terms] OR randomi* controlled trial* OR randomi* control trial* OR RCT* OR non-randomi* controlled trial* OR non-randomi* control trial* OR controlled clinical trial* OR clinical monitor* OR “comparative study” OR case series OR case report* OR case control* OR open stud* OR cohort stud*
2	Narrow band ultraviolet B OR narrowband ultraviolet B OR narrow band UVB OR NB-UVB OR NBUVB OR TL01 OR TL-01
3	ultraviolet therapy [MeSH Terms] OR “ultraviolet therapy” OR ultraviolet rays [MeSH Terms] OR “ultraviolet rays
4	B
5	3 AND 4
6	Narrow band OR narrowband OR NB
7	5 AND 6
8	2 OR 7
9	Cutaneous OR skin
10	8 AND 9
11	1 AND 10
12	phototherapy/instrumentation [MeSH Terms] OR photochemotherapy/instrumentation [MeSH Terms] OR radiometry/instrumentation [MeSH Terms] OR Psoracomb OR home phototherapy OR self administered phototherapy
13	10 AND 12
14	psoriasis [MeSH Terms] OR psoriasis
15	8 AND 14
16	eczema [MeSH Terms] OR eczema OR dermatitis [MeSH Terms] OR dermatitis
17	8 AND 16
18	(hand OR hands) OR (foot OR feet) OR palmar OR plantar
19	dermatos* OR eczema [MeSH Terms] OR eczema OR dermatitis OR psoriasis [MeSH Terms] OR psoriasis
20	18 AND 19
21	“palmar plantar pustulosis” OR “palmoplantar pustulosis” OR “palmar plantar psoriasis” OR “palmoplantar psoriasis” OR “palmar plantar eczema” OR “palmoplantar eczema” OR “palmar plantar dermatitis” OR “palmoplantar dermatitis”
22	20 OR 21
23	8 AND 22
24	photodermatos* OR “polymorph* light eruption” OR “eczema solare” OR “benign summer light eruption” OR “actinic prurigo” OR “prurigo adolescentium” OR “acne prurigo” OR “solar dermatitis” OR “solar prurigo” OR “familial actinic prurigo” OR “hereditary polymorphic light eruption” OR “light sensitive eruption” OR “chronic actinic dermatitis” OR “actinic reticuloid” OR “photosensitive

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	eczema” OR “photosensitive dermatitis” OR “persistent light reaction” OR “persistent light reactivity” OR “solar urticaria” OR “hydroa vacciniforme” OR “hydroa aestivale” OR “erythropoietic protoporphyria” OR “photoaggravated eczema” OR “photoaggravated dermatoses”
25	8 AND 24
26	vitiligo [MeSH Terms] OR vitiligo
27	8 AND 26
28	“lymphoma, t cell, cutaneous“ [MeSH Terms] OR “cutaneous T cell lymphoma” OR CTCL OR "mycosis fungoides" [MeSH Terms] OR "sezary syndrome" [MeSH Terms] OR “mycosis fungoides” OR “Sezary syndrome”
29	8 AND 28
30	Pregnancy [MeSH Terms] OR pregnan* OR miscarr* OR abort* OR “fetal malformation” OR “foetal malformation” OR teratogens [MeSH Terms] OR teratogenic* OR “premature labour” OR “premature labor” OR prematurity
31	10 AND 30
32	“adverse effect” OR “adverse effects” OR “side effect” OR “side effects” OR protect* OR prevent OR prevention OR manage* OR susceptib*
33	chronic
34	32 AND 33
35	“skin cancer” OR “skin tumour” OR "skin tumor" OR “non-melanoma skin cancer” OR “basal cell carcinoma” OR “squamous cell carcinoma” OR keratoacanthoma OR melanoma OR “lentigo maligna” OR “Bowen's disease” OR “actinic keratoses” OR “solar keratoses” OR porokeratosis OR “solar elastosis” OR photoaging OR lentigines OR freckle* OR hyperpigmentation OR ocular OR cataract* OR “internal malignancy” OR leukaemia OR lymphoma OR teratogenesis OR “foetal malformation” OR "fetal malformation" OR neoplasia
36	32 AND 35
37	34 OR 36
38	8 AND 37
39	“photodynamic therapy” OR photodynamic OR PDT
40	38 NOT 39
41	acute
42	32 AND 41
43	ocular OR eye OR phototoxic* OR gastrointestin* OR erythema OR redness OR nausea OR hepatic OR liver OR nail OR itch OR pruritus OR pain OR nausea OR vomit OR sickness OR immunosuppress* OR allergy OR “contact sensitivity” OR “allergic contact dermatitis” OR dermatitis OR autoimmune OR anaphylaxis OR pigmentation OR hyperpigmentation OR hypopigmentation OR infection OR “herpes simplex” OR HIV OR blister OR bulla OR pemphigoid OR malaise OR photosensitivity OR melanonychia OR dysosmia OR onycholysis OR pinguecula OR “lichen planus” OR “polymorph* light eruption” OR “eczema solare” OR “benign summer light eruption” OR “chronic actinic dermatitis” OR “actinic reticuloid” OR “photosensitive eczema” OR “photosensitive dermatitis” OR “persistent light reaction” OR “persistent light reactivity”
44	32 AND 43
45	42 OR 44

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46	10 AND 45
47	pain [MeSH Terms] OR pain OR erythema [MeSH Terms] OR erythema OR urticaria [MeSH Terms] OR urticaria OR allergy or infection [MeSH Terms] OR infection OR scarring OR scar OR milia OR pigmentation [MeSH Terms] OR pigmentation OR alopecia [MeSH Terms] OR alopecia OR “hair loss” OR hypertrichosis [MeSH Terms] OR hypertrichosis OR “excess hair” OR pustule OR pustules OR dermatitis [MeSH Terms] OR dermatitis OR purpura [MeSH Terms] OR purpura OR pemphigoid OR erosive pustular dermatosis
48	10 AND 47
49	“clinical indication” OR “clinical indications”
50	10 AND 49
51	protocol OR protocols OR regime OR regimen
52	10 AND 51
53	dose OR “minimal phototoxic dose” OR economics OR cost OR costs
54	10 AND 53
55	11 OR 13 OR 15 OR 17 OR 23 OR 25 OR 27 OR 29 OR 31 OR 40 OR 46 OR 48 OR 50 OR 52 OR 54

Medline (1946-current) & EMBASE (1947-current) (Proquest/DialogDatastar) search carried out on 01.08.2018

Search no.	Keywords
1	meta-analys$2 OR (systematic pre/0 review$1) OR (randomi$3 pre/0 control$3 pre/0 trial$1) OR RCT$1 OR (non-randomi$3 pre/0 control$3 pre/0 trial$1) OR (control$3 pre/0 clinical pre/0 trial$1) OR (clinical pre/0 monitor$3) OR (case pre/0 series) OR (case pre/0 report$1) OR (case pre/0 control$1) OR (open pre/0 stud$3) OR (cohort pre/0 stud$3)
2	TL01 OR TL-01 OR Narrow band ultraviolet B OR narrowband ultraviolet B OR narrow band UVB OR NB-UVB OR NBUVB
3	EMB.EXACT(“ultraviolet B radiation”)
4	MESH.EXACT(“ultraviolet therapy”) OR (ultraviolet pre/0 therap$3) OR MESH.EXACT(“ultraviolet rays”) OR (ultraviolet pre/0 rays)
5	B
6	4 AND 5
7	Narrow band OR narrowband OR NB
8	3 OR 6
9	7 AND 8
10	2 OR 9
11	Cutaneous OR skin
12	10 AND 11
13	1 AND 12
14	EMB.EXACT("phototherapy device") OR MESH.EXACT("Phototherapy -- instrumentation") OR MESH.EXACT("Photochemotherapy -- instrumentation") OR MESH.EXACT("Radiometry -- instrumentation") OR Psoracomb OR (home

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	pre/0 phototherapy) OR (self pre/0 administered pre/0 phototherapy) OR (self-administered pre/0 phototherapy)
15	12 AND 14
16	EMB.EXACT(“Psoriasis”) OR MESH.EXACT(“Psoriasis”) OR psoriasis
17	10 AND 16
18	EMB.EXACT(“eczema”) OR MESH.EXACT(“eczema”) OR eczema OR EMB.EXACT(“dermatitis”) OR MESH.EXACT(“dermatitis”) OR dermatitis
19	10 AND 18
20	(hand OR hands) OR (foot OR feet) OR palmar OR plantar
21	dermatos$ OR eczema OR EMB.EXACT(“eczema”) OR MESH.EXACT(“eczema”) OR dermatitis OR EMB.EXACT(“psoriasis”) OR MESH.EXACT(“psoriasis”) OR psoriasis
22	20 AND 21
23	(palmar pre/0 plantar pre/0 pustulosis) OR (palmoplantar pre/0 pustulosis) OR (palmar pre/0 plantar pre/0 psoriasis) OR (palmoplantar pre/0 psoriasis) OR (palmar pre/0 plantar pre/0 eczema) OR (palmoplantar pre/0 eczema) OR (palmar pre/0 plantar pre/0 dermatitis) OR (palmoplantar pre/0 dermatitis)
24	22 OR 23
25	10 AND 24
26	photodermatos$2 OR (polymorph$3 pre/0 light pre/0 eruption) OR (eczema pre/0 solare) OR (benign pre/0 summer pre/0 light pre/0 eruption) OR (actinic pre/0 prurigo) OR (prurigo pre/0 adolescentium) OR (acne pre/0 prurigo) OR (solar pre/0 dermatitis) OR (solar pre/0 prurigo) OR (familial pre/0 actinic pre/0 prurigo) OR (hereditary pre/0 polymorphic pre/0 light pre/0 eruption) OR (light pre/0 sensitive pre/0 eruption) OR (chronic pre/0 actinic pre/0 dermatitis) OR (actinic pre/0 reticuloi) OR (photosensitive pre/0 eczema) OR (photosensitive pre/0 dermatitis) OR (persistent pre/0 light pre/0 reaction) OR (persistent pre/0 light pre/0 reactivity) OR (solar pre/0 urticaria) OR (hydroa pre/0 vacciniforme) OR (hydroa pre/0 aestivale) OR (erythropoietic pre/0 protoporphyria) OR (photoaggravated pre/0 eczema) OR (photoaggravated pre/0 atopic pre/0 eczema) OR (photoaggravated pre/0 dermatoses) OR (photoaggravated pre/0 dermatitis)
27	10 AND 26
28	EMB.EXACT(“Vitiligo”) OR MESH.EXACT(“Vitiligo”) OR vitiligo
29	10 AND 28
30	EMB.EXACT(“cutaneous T cell lymphoma”) OR MESH.EXACT(“Lymphoma,t-cell, cutaneous”) OR (cutaneous pre/0 T pre/0 cell pre/0 lymphoma) OR CTCL OR EMB.EXACT(“mycosis fungoides”) OR MESH.EXACT(“mycosis fungoides”) OR EMB.EXACT(“Sezary syndrome”) OR MESH.EXACT(“sezary syndrome”) OR (mycosis pre/0 fungoides) OR (Sezary pre/0 syndrome)
31	10 AND 30
32	EMB.EXACT(“pregnancy”) OR MESH.EXACT(“pregnancy”) OR pregnan$4 OR miscarr$5 OR abort$4 OR (fetal pre/0 malformation) OR (foetal pre/0 malformation) OR EMB.EXACT(“teratogenic agent”) OR MESH.EXACT(“teratogens”) OR teratogenic$3 OR teratogen$1 OR (premature pre/0 labour) OR (premature pre/0 labor) OR prematurity
33	12 AND 32

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34	adverse OR EMB.EXACT(“side effect”) OR (adverse pre/1 effect$1) OR (side pre/0 effect$1) OR protect$4 OR prevent$3 OR manage$4 OR susceptib$5
35	chronic
36	34 AND 35
37	(skin pre/0 cancer) OR (skin pre/0 tumour) OR (skin pre/0 tumor) OR (non-melanoma pre/0 skin pre/0 cancer) OR (basal pre/0 cell pre/0 carcinoma) OR (squamous pre/0 cell pre/0 carcinoma) OR keratoacanthoma OR melanoma OR (lentigo pre/0 maligna) OR (Bowen$2 pre/0 disease) OR (actinic pre/0 keratoses) OR (solar pre/0 keratoses) OR porokeratosis OR (solar pre/0 elastosis) OR photoaging OR lentigines OR freckle$1 OR hyperpigment$5 OR ocular OR cataract$1 OR (internal pre/0 malignancy) OR leukaemia OR lymphoma OR teratogenesis OR (foetal pre/0 malformation) OR (fetal pre/0 malformation) OR neoplasia
38	34 AND 37
39	36 OR 38
40	10 AND 39
41	(photodynamic pre/0 therapy) OR photodynamic OR PDT
42	40 NOT 41
43	acute
44	34 AND 43
45	ocular OR eye OR phototoxic$3 OR gastrointestin$2 OR erythema OR redness OR nausea OR hepatic OR liver OR nail OR itch OR pruritus OR pain OR nausea OR vomit OR sickness OR immunosuppress$3 OR allergy OR (contact pre/0 sensitivity) OR (allergic pre/0 contact pre/0 dermatitis) OR dermatitis OR autoimmune OR anaphylaxis OR pigmentation OR hyperpigmentation OR hypopigmentation OR infection$1 OR (herpes pre/0 simplex) OR HIV OR blister OR bulla OR pemphigoid OR malaise OR photosensitivity OR melanonychia OR dysosmia OR onycholysis OR pinguecula OR (lichen pre/0 planus) OR (polymorph$3 light eruption) OR (eczema pre/0 solare) OR (benign pre/0 summer pre/0 light pre/0 eruption) OR (chronic pre/0 actinic pre/0 dermatitis OR actinic pre/0 reticuloid) OR (photosensitive pre/0 eczema) OR (photosensitive pre/0 dermatitis) OR (persistent pre/0 light pre/0 reaction) OR (persistent pre/0 light pre/0 reactivity)
46	34 AND 45
47	44 OR 46
48	12 AND 47
49	EMB.EXACT(“Pain”) OR MESH.EXACT(“pain”) OR pain OR EMB.EXACT(“erythema”) OR MESH.EXACT(“erythema”) OR erythema OR EMB.EXACT(“urticaria”) OR MESH.EXACT(“urticaria”) OR urticaria OR EMB.EXACT(“allergy”) OR allergy OR MESH.EXACT(“infection”) OR infection OR EMB.EXACT(“scar”) OR scarring OR scar OR milia OR EMB.EXACT(“pigmentation”) OR MESH.EXACT(“pigmentation”) OR pigmentation OR EMB.EXACT(“alopecia”) OR MESH.EXACT(“alopecia”) OR alopecia OR (hair pre/0 loss) OR EMB.EXACT(“hypertrichosis”) OR MESH.EXACT(“hypertrichosis”) OR hypertrichosis OR (excess pre/0 hair) OR EMB.EXACT(“pustule”) OR pustule$1 OR EMB.EXACT(“dermatitis”) OR MESH.EXACT(“dermatitis”) OR dermatitis OR EMB.EXACT(“purpura”) OR

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	MESH.EXACT("purpura") OR purpura OR EMB.EXACT("pemphigoid") OR pemphigoid OR (erosive pre/0 pustular pre/0 dermatosis)
50	12 AND 49
51	(clinical pre/0 indication$1)
52	12 AND 51
53	protocol$1 OR regime$1
54	12 AND 53
55	dosimetry OR economics OR cost$1
56	12 AND 55
57	13 OR 15 OR 17 OR 19 OR 25 OR 27 OR 29 OR 31 OR 33 OR 42 OR 48 OR 50 OR 52 OR 54 OR 56

Cochrane database (1990-current) search carried out on 01.08.2018

Search no.	Keywords
1	TL01:ti,ab,kw OR TL-01:ti,ab,kw OR narrow band UVB:ti,ab,kw OR narrow band ultraviolet b:ti,ab,kw OR NB-UVB:ti,ab,kw
2	Cutaneous OR skin
3	1 AND 2

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Appendix W: Audit standards, data items and data collection methodology

AUDIT STANDARDS, DATA ITEMS AND DATA COLLECTION

Point 1	
Description	All people with **psoriasis** treated with NB-UVB therapy should have their prior inadequate response to topical therapy recorded, as well as consideration of NB-UVB prior to commencing conventional systemic therapy.
Data items	1. Inadequate response to topical therapy. 2. Consideration of NB-UVB prior to commencing conventional systemic therapy.
Collection methodology	Records of 30 consecutive people with psoriasis receiving NB-UVB therapy should be reviewed retrospectively for evidence in clinical notes.
Royal College of Physician Domains	2, 3, 5
Point 2	
Description	All people with **eczema** treated with NB-UVB therapy should have their prior inadequate response to topical therapy recorded, as well as consideration of NB-UVB prior to commencing conventional systemic therapy, continued topical therapy during NB-UVB therapy, and stabilization of severe, acute flares prior to commencing NB-UVB therapy.
Data items	1. Inadequate response to topical therapy. 2. Continued topical therapy during NB-UVB therapy. 3. Consideration of NB-UVB prior to commencing conventional systemic therapy. 4. Stabilization of severe, acute flares prior to commencing NB-UVB therapy.
Collection methodology	Records of 30 consecutive people with eczema receiving NB-UVB therapy should be reviewed retrospectively for evidence in clinical notes.
Royal College of Physician Domains	2, 3, 5
Point 3	
Description	All people with **vitiligo** treated with NB-UVB therapy should have their prior inadequate response to topical therapy recorded, as well as their extensive or progressive disease.
Data items	1. Inadequate response to topical therapy. 2. Extensive or progressive disease.
Collection methodology	Records of 30 consecutive people with vitiligo receiving NB-UVB therapy should be reviewed retrospectively for evidence in clinical notes.

Royal College of Physician Domains	2, 3, 5
Point 4	
Description	All people treated with NB-UVB therapy should be provided with a patient information leaflet.
Data items	1. Provision of a patient information leaflet.
Collection methodology	Records of 30 consecutive people receiving NB-UVB therapy should be reviewed retrospectively for evidence in clinical notes.
Royal College of Physician Domains	4

In 2010, the government published its vision for the NHS "Transparency in Outcomes – a Framework for the NHS". This proposed that 'Process Measures' should be replaced by 'Outcome Measures' forming an NHS Outcome Framework with 5 domains:

1. Preventing people from dying prematurely
2. Enhancing quality of life for people with long-term conditions
3. Helping people recover from episodes of ill health or following injury
4. Ensuring people have a positive experience of care
5. Treating and caring for people in a safe environment and protecting them from avoidable harm

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