



## **PHOTOTHERAPY GUIDELINES**

Dowling Day Treatment Unit  
St John's Institute of Dermatology  
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London

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## Table of Contents

Table of Contents.....	2
Use of guidelines.....	4
Definition of evidence.....	4
MED and MPD testing.....	
Maximum initial doses for PUVA.....	6
Dose series for MED testing.....	9
Dose series for MED testing.....	10
Administration of psoralens.....	9
PUVA; Oral Psoralen: psoriasis.....	12
PUVA; bath psoralen; psoriasis.....	11
PUVA; oral psoralen; hand-foot psoriasis and PPP.....	12
PUVA; hand-foot immersion psoralen; hand-foot psoriasis and PPP.....	12
PUVA; oral psoralen; vitiligo.....	14
PUVA; bath psoralen; vitiligo.....	14
PUVA; gel psoralen; vitiligo.....	14
PUVA; oral psoralen; mycosis fungoides.....	15
PUVA; bath psoralen; mycosis fungoides.....	17
PUVA; oral psoralen; atopic eczema.....	18
PUVA; bath psoralen; atopic eczema.....	19
PUVA; oral psoralen; polymorphic light eruption.....	20
PUVA; bath psoralen; polymorphic light eruption.....	21
PUVA; oral psoralen; actinic prurigo.....	22
PUVA; oral psoralen; erythropoietic protoporphyria.....	22
TL-01; psoriasis.....	23
TL-01; vitiligo.....	24
TL-01; mycosis fungoides.....	24
TL-01; atopic eczema.....	24
Lower legs.....	29
The treatment of vitiligo.....	30
The treatment of mycosis fungoides.....	30
Finishing a course of phototherapy.....	30
Notes on PUVA therapy.....	31
1. The use of oral 5-MOP.....	31
2. Potential drug interactions.....	31
3. Re-PUVA (Retinoid + PUVA).....	31
TL-01; polymorphic light eruption.....	25
TL-01; actinic prurigo.....	26
TL-01; erythropoietic protoporphyria (desensitisation protocol).....	26
UV6; psoriasis.....	27
Notes on PUVA, TL-01 and UV6 therapy.....	28
1. Maximising the efficacy of phototherapy.....	28
2. Protection of the face, eyes, genitals, and feet during treatment.....	28
3. Psoriasis and mycosis fungoides; additional treatment of special sites.....	29
4. Sun avoidance.....	31
Maximum dose guidelines.....	34
PUVA.....	34
NBUVB.....	34



UV6..... 34  
Management of phototherapy-induced erythema..... 35  
Missed treatment guidelines ..... 35  
Discharge Guidelines..... 36  
References ..... 37  
Pre-phototherapy assessment form ..... 42  
.....



## **Use of these guidelines**

The guidelines given in this document, including starting doses and increments, are the guidelines used by staff in the Dowling Day Treatment Unit at St. John's Institute of Dermatology. They reflect the opinions of the authors; others may prefer alternative treatment regimens. The guidelines are only suggestions for treatment and it is necessary to depart from them in some circumstances. For example, staff may modify treatment for a particular patient according to the nature of the condition (for example, the type of psoriasis), the history of previous UV treatments and the patient's current medication. Other dermatology units who may consider using these guidelines should always ensure that the doses cited here are appropriate for their practice; calibration differs markedly between centres. For example, TL-01 calibration in the UK varies by at least a factor of 2.7 (Lloyd 2004).

## **Definition of evidence**

Where a level of evidence is cited in association with a specific statement, it refers to the best evidence underlying that statement.

Where a level of evidence is cited in association with a protocol, it refers to the best evidence underlying the use of that particular protocol in the treatment of that particular disease.

Publications are cited where they are relevant to the topic, and they do not necessarily refer to the use of a particular protocol.

## **Definition of levels of evidence**

- Ia from meta-analysis of randomised controlled trials (RCTs)
- Ib from at least one RCT. Phototherapy side-to-side within-patient comparison studies are considered as RCTs.
- IIa from at least one well designed controlled study without randomisation
- IIb from at least one other type of well designed quasi-experimental study
- III from well-designed non-experimental descriptive studies e.g. comparative studies, correlation studies, case-control studies
- IV from expert committee reports or opinions and/or clinical experience of authorities
- V consultants or other single individuals

## **Quality of recommendation of guidance**

This is graded according to the level of evidence:

Grade A evidence: levels Ia and Ib

Grade B evidence: levels IIa IIb and III

Grade C evidence: level IV



## **MPD and MED testing**

### **Anatomical site**

Use uninvolved skin on the upper-back because this site usually has a lower MED (and by inference MPD) than other sites sometimes used for MED/MPD testing (Gordon 1998, Leslie 2004, Rhodes 1992, Waterston 2004) so may therefore prevent burning. It also has the advantages of being a large area of relatively constant sensitivity, and tending to be less hairy than the abdomen. The suggested location is at the level of the axilla, midway between the posterior axillary line and the spine.

If skin on the upper-back is not suitable for testing because it is involved by disease, then use (in decreasing order of preference) the abdomen (just above the level of the umbilicus avoiding the midline), lower back or buttocks. If the patient has an obvious tan at all sites except the buttocks, consider using the buttocks, or treating the patient with the buttocks covered. Clearly document the location of the test sites and the range of doses used.

### **Timing of readings**

The readings should be made 4 days (96 hours) later for the MPD (Cox 1989, Ibbotson 1999, Man 2003a, Man 2003b, Man 2004), and 24 hours later for the MED, and documented.

### **Reading a MPD/MED**

The MPD/MED is the dose that provokes a just perceptible erythema (Quinn 1994). MPD/MED reactions can be graded as follows:

- 0 no reaction
- 0.5 just perceptible = MPD/MED
- 1 definite borders
- 2 intense erythema, not palpable
- 3 intense erythema, palpable
- 4 intense erythema with blisters



### **Maximum initial doses for PUVA**

In the case of oral PUVA, if all MPD doses tested are negative, first consider increasing the dose of oral psoralen by 10mg (NB. the maximum dose is 60mg) and repeating the MPD test.

The boxes below on the right side of this page give maximum initial doses. We suggest that the stated doses are not exceeded, regardless of the results of the MPD. Therefore, the only reason to test the higher doses in the MPD series is for audit/research, and they can be omitted if this will not be done.

### **Dose series for MPD testing**

If skin type VI, use a skin-type based regime.

### **Oral 8-MOP and 5-MOP**

Use a Waldmann skin tester; this gives 20% more UVA than it claims, so for example when it says it is giving 0.5 J/cm<sup>2</sup> it is actually giving 0.6 J/cm<sup>2</sup>. The doses given below are the true doses. All doses are in J/cm<sup>2</sup>.

Skin type						
I, II	0.6	1.2	2.4	3.6	4.8	6.0
III, IV	1.8	2.4	3.6	6.0	8.4	10.8
V	1.8	2.4	3.6	6.0	8.4	10.8

Max initial dose
3.0
4.2
5.4

### **Bath 8-MOP**

**Use templates. Doses are in J/cm<sup>2</sup>.**

Skin type						
I, II	0.14	0.20	0.28	0.39	0.55	0.77
III, IV	0.2	0.28	0.39	0.55	0.77	1.08
V	0.28	0.39	0.55	0.77	1.08	1.51

Max initial dose
0.7
1.0
1.3



### Dose series for MED testing

If skin type VI, use a skin-type based regime

#### TL-01 Use templates. Doses are in mJ/cm<sup>2</sup>.

Skin type						
I, II	100	140	200	280	390	550
III, IV	140	200	280	390	550	770
V	200	280	390	550	770	1080

Suggested initial dose if all readings negative
540
750
1060

#### UV6 Use templates. Doses are in mJ/cm<sup>2</sup>.

Skin type						
I, II	70	100	140	200	280	390
III, IV	100	140	200	280	390	550
V	140	200	280	390	550	770

Suggested initial dose if all readings negative
380
540
750



## **Test doses**

Cases of unrecognised pathological photosensitivity due to, for example, solar urticaria, chronic actinic dermatitis or drug-induced photosensitivity, are very rare. However, in such cases the consequences of whole-body exposure to UV are potentially serious. Therefore prior to commencing a course of phototherapy, in cases where an MED or MPD is not performed, it is desirable to expose a small area of skin (for example, a square area on the upper back measuring 5cm x 5cm) to a dose of UV equalling the dose that will be given for the first whole-body treatment. The area should be inspected immediately after irradiation, and 24 hours later (in the case of UVB) or 96 hours later (in the case of PUVA). If erythema is present, either an MED/MPD must be performed or a dermatologist should be consulted, as appropriate. If erythema is not present, then at the time of the 24 or 96 hour inspection the whole body can be exposed to the starting dose.

Test doses are usually not required if treatment will only be given to a localised area, such as the palms and soles. They may also not be required if a patient has had phototherapy within the previous year without problems, and is not taking any systemic medication.





## **Administration of psoralens**

### **Psoralens**

(Martindale 2005)

The type and quantity of food eaten before or with oral psoralen, should be kept constant. Ideally the time of day of administration should also be kept constant.

#### **Oral 8- Methoxypsoralen (8-MOP)**

8-MOP is taken 2 hours before treatment, at a dose of 25mg/m<sup>2</sup> (Ibbotson 2001). The body surface area is calculated using a nomogram. Basing the dose on body surface area is preferable to basing the dose only on body weight (McLelland 1991, Sakunthabai 1992, Sakunthabai 1994).

#### **Oral 5-Methoxypsoralen (5-MOP)**

5-MOP is taken 3 hours before treatment (Makki 1989), at a dose of 50mg/m<sup>2</sup>.

### **Bath PUVA**

(Halpern 2000)

30mls of 8-MOP 1.2% solution is added to 100 litres of water (=3.6mg/L) at 37C (Gruss 1998) and the patient is immersed for 15 minutes (Man 2003a).

UVA exposure is given immediately. Patients do not need to shower afterwards but should have sunscreen applied to any areas that will be exposed to sunshine in the next four hours.

### **Hand-foot immersion PUVA**

(Halpern 2000, Konya 1992)

1.3mls of 8-MOP 1.2% solution is added to 4 litres of water (=3.9mg/L) at 37C and the patients hands or feet are immersed for 15 minutes.

UVA exposure is ideally given 30 minutes afterwards but can be given immediately. The hands/feet do not need to be washed afterwards, but should have sunscreen applied if they will be exposed to sunshine in the next four hours.

### **Gel PUVA**

(Halpern 2000)

A thin layer of 0.005% gel is applied to the diseased area using a gloved hand.

UVA exposure is given 30 minutes later.



### **PUVA; oral psoralen; psoriasis**

(British Photodermatology Group 1994, Buckley 1995, Buckley 1997, Carabott 1989, Collins 1996, Cox 1990, Das 2003, Sakuntabhai 1993, Sakuntabhai 1994, Yones 2006)

Although debatable, we consider it desirable to determine the initial dose by measuring the MPD (Buckley 1995, Collins 1996, Das 2003). A non-MPD based regime may be used when there is not enough unaffected skin on back, abdomen or buttocks, or the patient is skin type VI. 8-MOP is usually used in preference to 5-MOP, unless nausea or itch occur when it may be substituted by 5-MOP.

### **With MPD testing (preferred); 8-MOP and 5-MOP**

Frequency of treatment; twice per week

Initial dose; 70% MPD

Increment; 20%

Maximum single dose 15J /cm<sup>2</sup>

(Level of evidence IIa; grade B)

### **Without MPD testing; 8-MOP**

(If 5-MOP is prescribed an MPD regime should be used, unless it is absolutely impossible to do so.)

Frequency of treatment; twice per week

Skin type	Starting dose	Increment
I	0.5 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>
II	1 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>
III	1.5 J/cm <sup>2</sup>	1.5 J/cm <sup>2</sup>
IV	2 J/cm <sup>2</sup>	2 J/cm <sup>2</sup>
V	2.5 J/cm <sup>2</sup>	2 J/cm <sup>2</sup>
VI	3J/cm <sup>2</sup>	2.5 J/cm <sup>2</sup>

*Maximum single dose 15 J/cm<sup>2</sup>*

*(Level of evidence IV)*



## **PUVA; bath psoralen; psoriasis**

(Cooper 2000, Halpern 2000)

Although debatable, we consider it desirable to determine the initial dose by measuring the MPD. A non-MPD based regime may be used when there is not enough unaffected skin on back, abdomen or buttocks, or the patient is skin type VI.

### **With MPD testing (preferred)**

Frequency of treatment; twice per week

Initial dose; 50% MPD

Increment; 20%

Maximum single dose 8 J/cm<sup>2</sup>

*(Level of evidence IV, grade C).*

### **Without MPD testing**

Frequency of treatment; twice per week.

Skin type	Starting dose and increment
I	0.1 J/cm <sup>2</sup>
II	0.2 J/cm <sup>2</sup>
III	0.3 J/cm <sup>2</sup>
IV	0.4 J/cm <sup>2</sup>
V	0.5 J/cm <sup>2</sup>
VI	0.6 J/cm <sup>2</sup>

*Maximum single dose 8 J/cm<sup>2</sup>*

*(Level of evidence IV, grade C).*



## **PUVA; hand-foot psoriasis and PPP**

(PPP= palmoplantar pustulosis)

When psoriasis of the hands and feet exists in association with psoriasis elsewhere, treat all areas with one of the regimes given above. When only the hands and feet are affected, they can be treated alone, with the following skin-type based regime. The evidence for effectiveness of oral PUVA is strong in hand-foot psoriasis and palmoplantar pustulosis. The evidence for effectiveness of topical PUVA is weak in hand-foot psoriasis and palmoplantar pustulosis. (Marsland 2006.)

## **PUVA; oral psoralen; hand-foot psoriasis and PPP**

(Marsland 2006.)

Frequency of treatment; twice per week.

Maximum single dose 15 J/cm<sup>2</sup>

These doses are the starting doses AND increments:

Skin type	Palms and soles	Dorsa of hands
I	1 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>
II	1.5 J/cm <sup>2</sup>	1 J/cm <sup>2</sup>
III	2 J/cm <sup>2</sup>	1.5 J/cm <sup>2</sup>
IV	2.5 J/cm <sup>2</sup>	2 J/cm <sup>2</sup>
V, VI	3 J/cm <sup>2</sup>	2.5 J/cm <sup>2</sup>

*(Level of evidence I, grade A )*

## **PUVA; hand-foot immersion psoralen; hand-foot psoriasis and PPP**

(Marsland 2006.)



Frequency of treatment; twice per week.

Maximum single dose 8 J/cm<sup>2</sup>

These doses are the starting doses AND increments:

Skin type	Palms and soles	Dorsa of hands
I	0.2 J/cm <sup>2</sup>	0.1 J/cm <sup>2</sup>
II	0.3 J/cm <sup>2</sup>	0.2 J/cm <sup>2</sup>
III	0.4 J/cm <sup>2</sup>	0.3 J/cm <sup>2</sup>
IV	0.5 J/cm <sup>2</sup>	0.4 J/cm <sup>2</sup>
V, VI	0.6 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>

*(Level of evidence V, grade C)*



### **PUVA; oral psoralen; vitiligo**

(British Photodermatology Group 1994, Kwok 2002)

Frequency of treatment; twice per week

Initial dose; 0.5 J/cm<sup>2</sup>

Incremental doses; 0.25 J/cm<sup>2</sup> increase at each visit until a maximum of 5 J/cm<sup>2</sup> is reached. If erythema develops, omit treatment until settled and reduce to the previous dose, and then use increments of 0.1-0.25 J/cm<sup>2</sup> if no erythema.

Maximum single dose 5 J/cm<sup>2</sup>

*(Level of evidence IV, grade C)*

### **PUVA; bath psoralen; vitiligo**

Frequency of treatment; twice per week

Initial dose; 0.05 face, 0.1 J/cm<sup>2</sup> other sites

Incremental doses: 0.05 J/cm<sup>2</sup> each treatment until a maximum of 1 J/cm<sup>2</sup> is reached. If erythema develops, omit treatment until settled, reduce to previous dose, and then use increments of 0.02-0.05 J/cm<sup>2</sup> if no erythema.

Maximum single dose 1 J/cm<sup>2</sup>

*(Level of evidence V)*

### **PUVA; gel psoralen; vitiligo**

Frequency of treatment; twice per week

Initial dose: 0.05 J/cm<sup>2</sup> to face\*, 0.1 J/cm<sup>2</sup> to body

Incremental doses: 0.05 J/cm<sup>2</sup> each treatment until a maximum of 1 J/cm<sup>2</sup> is reached. If erythema develops, omit treatment until settled, reduce to previous dose, and then use increments of 0.02-0.05 J/cm<sup>2</sup> if no erythema.

Maximum single dose 1 J/cm<sup>2</sup>

\*If marked erythema develops following the first dose, omit treatment until settled and restart using 1:4 diluted solution with the above doses.

*(Level of evidence V)*



## **PUVA; oral psoralen; mycosis fungoides**

(Baron 2003, British Photodermatology Group 1994, Roenigk 1977, Whittaker 2003)

### Protocol 1

Frequency of treatment; twice per week

Maximum single dose 15 J/cm<sup>2</sup>

Skin type	Starting dose and increment
I	0.25 J/cm <sup>2</sup>
II	0.5 J/cm <sup>2</sup>
III	1 J/cm <sup>2</sup>
IV	1 J/cm <sup>2</sup>
V	1 J/cm <sup>2</sup>
VI	1 J/cm <sup>2</sup>

*(Level of evidence IV, grade C)*

### Protocol 2

Frequency of treatment; twice per week

Initial dose; 70% MPD

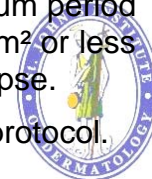
Increment; 20%

Maximum single dose 15 J/cm<sup>2</sup>

*(Level of evidence V)*

### Notes

- Hypopigmented disease, treat as type I.
- For scalp lesions covered by hair, it is likely to be necessary to trim hair as close to the scalp as possible to allow for easier exposure under the Waldmann 800 canopy.
- For disease affecting the eyelids, expose during treatment for minimum period to achieve clearance. Start with 0.25 J/cm<sup>2</sup> and increase by 0.25 J/cm<sup>2</sup> or less until clear, then add goggles full time, but continue to monitor for relapse.
- If patient has disease on genitals, undertake treatment as for eyelid protocol.



- A few patients may react adversely to PUVA with pain or erythema or both; in these patients increments of UVA dose should be small.





## **PUVA; bath psoralen; mycosis fungoides**

(British Photodermatology Group 1994)

Frequency of treatment; twice per week

Maximum single dose 8 J/cm<sup>2</sup>

Skin type	Starting dose and increment
I	0.05 J/cm <sup>2</sup>
II	0.1 J/cm <sup>2</sup>
III	0.15 J/cm <sup>2</sup>
IV	0.15 J/cm <sup>2</sup>
V	0.2 J/cm <sup>2</sup>
VI	0.2 J/cm <sup>2</sup>

*(Level of evidence V)*

### With MPD testing

Frequency of treatment; twice per week

Initial dose; 40% MPD

Increment; 20%

Maximum single dose 8 J/cm<sup>2</sup>

*(Level of evidence IV, grade C).*



## **PUVA; oral psoralen; atopic eczema**

(Atherton 1988, Morison 1978a, Sheehan 1993)

Frequency of treatment; twice per week

Maximum single dose 15 J/cm<sup>2</sup>

Skin type	Starting dose and increment
I	0.5 J/cm <sup>2</sup>
II	1 J/cm <sup>2</sup>
III	1 J/cm <sup>2</sup>
IV	1 J/cm <sup>2</sup>
V	1.5 J/cm <sup>2</sup>
VI	1.5 J/cm <sup>2</sup> in children, 2 J/cm <sup>2</sup> in adults

*(Level of evidence IIa, Grade B)*

If eczematous skin flares, which is common early in treatment, continue with treatment but consider a slowly reducing course of oral prednisolone. It is important that PUVA is continued with normal increments if the uninvolved skin is tolerating the treatments, as the optimum dose under such circumstances has not yet been reached to suppress the eczema.

Continue twice weekly treatments until the patient is clear of eczema, giving extra exposures if necessary to areas of skin spared during treatments, such as neck, under chin, flexures and antecubital fossae.

The dose at which clearance is achieved will be between 5 and 15 J/cm<sup>2</sup> depending on skin type. Once clear, continue to give this dose at each treatment session, but gradually reduce the frequency of treatments, as follows:

Frequency	Duration
Twice per week	6 weeks
Three times every 2 weeks	6 weeks
Once per week	6 weeks
Once per fortnight	6 weeks
Once every 3 weeks	6 weeks
STOP	



If any tendency to relapse occurs following reductions, return to previous frequency for a further six weeks. If loss of control occurs, refer for further medical assessment.

Also:

- Encourage the use of adequate emollient therapy.
- Observe for signs of bacterial or viral skin infection, which will require early medical assessment.
- Once the exposure dose is above 7J/cm<sup>2</sup>, cover the patient's face for half the exposure time.
- Stand children on a raised platform during exposure to give a more even exposure to the whole body.

### **PUVA; bath psoralen; atopic eczema**

Frequency of treatment; twice per week

Maximum single dose 8 J/cm<sup>2</sup>

Skin type	Starting dose and increment
I	0.1 J/cm <sup>2</sup>
II	0.2 J/cm <sup>2</sup>
III	0.2 J/cm <sup>2</sup>
IV	0.2 J/cm <sup>2</sup>
V	0.3 J/cm <sup>2</sup>
VI	0.3 J/cm <sup>2</sup> in children, 0.4 J/cm <sup>2</sup> in adults

*(Level of evidence V)*



## **PUVA; oral psoralen; polymorphic light eruption**

(Addo 1987, Bilslund 1993, Man 1999, Murphy 1987, Palmer 2004)

This protocol can also be used for actinic prurigo patients being treated prophylactically in spring who do not currently have lesions of prurigo.

In patients with a history of severe PLE, the dermatologist may suggest a greater number of treatments; in that case, give treatment as below, then continue treatment with 20% increments until the correct number of treatments has been given.

It may be appropriate to only treat sites which will be exposed to sunshine and which are prone to developing PLE.

If PLE flares, withhold therapy until settled. The patient may often need prednisolone 30mg each morning for several days until settled and then just on each treatment day.

### **Skin type III - VI**

Twice weekly for 4 weeks. 40% increments.

Week	1	0.5 J/cm <sup>2</sup>	0.7 J/cm <sup>2</sup>
	2	1 J/cm <sup>2</sup>	1.4 J/cm <sup>2</sup>
	3	2 J/cm <sup>2</sup>	2.8 J/cm <sup>2</sup>
	4	3.9 J/cm <sup>2</sup>	5.6 J/cm <sup>2</sup>

### **Skin type I – II ( or if there is a history of difficulties with the above protocol)**

Twice weekly for six weeks.

Week	1	0.3 J/cm <sup>2</sup>	0.5 J/cm <sup>2</sup>
	2	0.7	0.9
	3	1.1	1.3
	4	1.6	1.9
	5	2.3	2.8
	6	3.4	4.0

*Level of evidence V*



## **PUVA; bath psoralen; polymorphic light eruption**

This protocol can also be used for actinic prurigo patients being treated prophylactically in spring who do not currently have lesions of prurigo.

In patients with a history of severe PLE, the dermatologist may suggest a greater number of treatments; in that case, give treatment as below, then continue treatment with 20% increments until the correct number of treatments has been given.

It may be appropriate to only treat sites which will be exposed to sunshine and which are prone to developing PLE.

If PLE flares, withhold therapy until settled. The patient may often need prednisolone 30mg each morning for several days until settled and then just on each treatment day.

Twice weekly for four weeks. 40% increments.

Week	1	0.06 J/cm <sup>2</sup>	0.09 J cm <sup>2</sup>
	2	0.12	0.17
	3	0.25	0.35
	4	0.49	0.68

Level of evidence V



### **PUVA; oral psoralen; actinic prurigo**

This protocol is for treating patients who currently have lesions of prurigo. If instead the only aim of treatment is the prevention of new lesions, use a PLE protocol.

Twice weekly for 6 weeks.

Week	1	0.25 J/cm <sup>2</sup>	0.4 J/cm <sup>2</sup>
	2	0.55 J/cm <sup>2</sup>	0.75 J/cm <sup>2</sup>
	3	1.0 J/cm <sup>2</sup>	1.3 J/cm <sup>2</sup>
	4	1.6 J/cm <sup>2</sup>	1.9 J/cm <sup>2</sup>
	5	2.4 J/cm <sup>2</sup>	2.9 J/cm <sup>2</sup>
	6	3.4 J/cm <sup>2</sup>	4.0 J/cm <sup>2</sup>

If not clear of lesions at the end of this period, continue twice weekly at 4.0 J/cm<sup>2</sup> until clear of lesions, for a maximum of a further 6 weeks.

Level of evidence V

### **PUVA; oral psoralen; erythropoietic protoporphyria**

(Roelandts 1995, Ros 1988)

Start dose: 1J/cm<sup>2</sup>

Increment: 20% up to highest dose of 15.4J/cm<sup>2</sup>.

Frequency: twice weekly

Total number of treatments: 15

Level of evidence IV.



## **Narrowband UVB (TL-01); psoriasis**

(British Photodermatology Group 1997, Cameron 2002, Dawe 1998, Drummond 2003, Green 1998, Hofer 1998, Ibbotson 2004, Wainwright 1998, Yones 2006)

Frequency of treatment; three times per week (Mon, Wed, Fri) or twice per week. Three times per week achieves clearance significantly faster, and possibly with fewer exposures, than twice per week (Cameron 2002), but if patients find it inconvenient to attend three times per week, they should be offered twice-weekly treatment. Treatment five times per week is not recommended (Dawe 1998).

Although debatable, we consider it desirable to determine the initial dose by measuring the MED (Drummond 2003, Gordon 1998). A non-MED based regime may be used when there is not enough unaffected skin on back, abdomen or buttocks, or the patient is skin type VI.

### With MED testing (preferred)

Initial dose; 70% of MED

Increments; 20%

Maximum single dose 5 J/cm<sup>2</sup>

*(Level of evidence Ib; grade A)*

### Without MED testing

Skin type	Starting dose	First 3 increments	Subsequent increments
I	100 mJ/cm <sup>2</sup>	40 mJ/cm <sup>2</sup>	20% of previous dose
II	120 mJ/cm <sup>2</sup>	50 mJ/cm <sup>2</sup>	20% of previous dose
III	150 mJ/cm <sup>2</sup>	60 mJ/cm <sup>2</sup>	20% of previous dose
IV	200 mJ/cm <sup>2</sup>	80 mJ/cm <sup>2</sup>	20% of previous dose
V	300 mJ/cm <sup>2</sup>	120 mJ/cm <sup>2</sup>	20% of previous dose
VI	500 mJ/cm <sup>2</sup>	200 mJ/cm <sup>2</sup>	20% of previous dose

Maximum single dose 5 J/cm<sup>2</sup>

*(Level of evidence V)*



### **TL-01; vitiligo**

(Natta 2003, Njoo 2000, Tjioe 2002, Westerhof 1997, Njoo 1998)

Frequency of treatment; twice per week

Initial dose; 100 mJ/cm<sup>2</sup>

Increments; 20%

Maximum single dose 2 J/cm<sup>2</sup>

*(Level of evidence Ia; grade A)*

### **TL-01; mycosis fungoides**

(Baron 2003, Clark 2000, Diederer 2003, Ramsay 1992)

Frequency of treatment; twice per week

Initial dose; 70% of MED

Increments; 20%

Maximum single dose 5 J/cm<sup>2</sup>

*(Level of evidence IIa; grade B)*

### **TL-01; atopic eczema**

(Collins 1995a, George 1993, Hudson-Peacock 1996)

Frequency of treatment; twice per week

Initial dose; 70% of MED

Increments; 20%

Maximum single dose 5 J/cm<sup>2</sup>

The dose being given when clearance is achieved is the "clearance dose". Once clearance is achieved wean down treatment as follows:

Dose as percentage of clearance dose	Frequency	Duration
100%	Twice per week	4 weeks
100%	Once per week	4 weeks
75%	Once per fortnight	4 weeks
60%	Once per 3 weeks	6 weeks
STOP		

*(Level of evidence V).*





## **TL-01; polymorphic light eruption**

(Bilsland 1993, Man 1999)

This protocol can also be used for actinic prurigo patients being treated as prophylaxis in spring who do not currently have lesions of prurigo.

In patients with a history of severe PLE, the dermatologist may suggest a greater number of treatments; in that case, give treatment as below, then continue treatment with 20% increments until the correct number of treatments has been given.

It may be appropriate to only treat sites which will be exposed to sunshine and which are prone to developing PLE.

If PLE flares, withhold therapy until settled. The patient may need prednisolone 30mg each morning for several days until settled and then just on each treatment day.

### **Skin type I-IV (20% increments)**

Week	1	150 mJ/cm <sup>2</sup>	180 mJ/cm <sup>2</sup>
	2	220 mJ/cm <sup>2</sup>	260 mJ/cm <sup>2</sup>
	3	310 mJ/cm <sup>2</sup>	370 mJ/cm <sup>2</sup>
	4	440 mJ/cm <sup>2</sup>	530 mJ/cm <sup>2</sup>

### **Skin types V – VI (40% then 20% increments)**

Week	1	150 mJ/cm <sup>2</sup>	200 mJ/cm <sup>2</sup>
	2	300 mJ/cm <sup>2</sup>	400 mJ/cm <sup>2</sup>
	3	600 mJ/cm <sup>2</sup>	800 mJ/cm <sup>2</sup>
	4	960 mJ/cm <sup>2</sup>	1,150 m J/cm <sup>2</sup>

*(Level of evidence V).*



### **TL-01; actinic prurigo**

This protocol is for treating patients who currently have lesions of prurigo. If instead the only aim of treatment is the prevention of new lesions, use a PLE protocol.

Twice weekly for 6 weeks.

Week	1	30 mJ/cm <sup>2</sup>	40 mJ/cm <sup>2</sup>
	2	60 mJ/cm <sup>2</sup>	90 mJ/cm <sup>2</sup>
	3	100 mJ/cm <sup>2</sup>	130 mJ/cm <sup>2</sup>
	4	160 mJ/cm <sup>2</sup>	190 mJ/cm <sup>2</sup>
	5	240 mJ/cm <sup>2</sup>	290 mJ/cm <sup>2</sup>
	6	340 mJ/cm <sup>2</sup>	400 mJ/cm <sup>2</sup>

If not clear of lesions at the end of this period, continue twice weekly at 400 mJ/cm<sup>2</sup> until clear of lesions, for a maximum of a further 6 weeks.

(Level of evidence V).

### **TL-01; erythropoietic protoporphyria (desensitisation protocol)**

(Collins 1995b, Warren 1998)

Start dose: 70% of MED

Increment : 20%

Frequency: twice weekly

Total number of treatments: 18

Maximum single dose 5 J/cm<sup>2</sup>

(Level of evidence IV).



## **Broadband UVB (UV6); psoriasis**

Treatment may be given three times per week or, if the patient is an inpatient, five times per week.

### **With MED testing**

Initial dose; 70% of MED.

3 x weekly: 20% increments.

5 x weekly: 10% increments.

Maximum single dose 2 J/cm<sup>2</sup>

*(Level of evidence V).*

### **Without MED testing**

Note that the doses cited here are for broad-band UVB with UV6 lamps; broad-band UVB with UV21 lamps will require significantly lower doses.

Skin type	Starting dose	Increment (3x weekly)	Increment (5x weekly)*
I	50 mJ/cm <sup>2</sup>	40 mJ/cm <sup>2</sup>	20 mJ/cm <sup>2</sup>
II	60 mJ/cm <sup>2</sup>	50 mJ/cm <sup>2</sup>	20 mJ/cm <sup>2</sup>
III	70 mJ/cm <sup>2</sup>	60 mJ/cm <sup>2</sup>	30 mJ/cm <sup>2</sup>
IV	100 mJ/cm <sup>2</sup>	80 mJ/cm <sup>2</sup>	40 mJ/cm <sup>2</sup>
V	150 mJ/cm <sup>2</sup>	120 mJ/cm <sup>2</sup>	60 mJ/cm <sup>2</sup>
VI	250 mJ/cm <sup>2</sup>	200 mJ/cm <sup>2</sup>	100 mJ/cm <sup>2</sup>

\*Ensure 24 hrs between treatments.

Maximum single dose 2 J/cm<sup>2</sup>

*(Level of evidence V).*



## **Notes on PUVA, TL-01 and UV6 therapy**

### **1. Maximising the efficacy of phototherapy**

#### **Concomitant topical therapies**

Patients with a dry scaly condition should be encouraged to use an appropriate emollient regularly, particularly prior to UV treatments. A water-based emollient, such as aqueous cream or Diprobase, should be applied 30mins to one hour before treatment (usually to all UV exposed areas as they tend to develop dry skin at all treated sites). Also, any patient who develops itch during phototherapy may benefit from emollients. Regular use of bath oils will help counteract the drying tendency of UV.

Salicylic acid may be used before a course of phototherapy starts, in order to remove scale. In the treatment of psoriasis, caution should be exercised with the concomitant use of potent topical steroid, as it may lead to earlier relapse (Morison 1978b).

#### **Posture in the cabinet**

If patients have disease in areas that would not normally be exposed to UV (eg. axillae) they should be given appropriate advice concerning posture during the irradiation.

### **2. Protection of the face, eyes, genitals, and feet during treatment**

Exposure to the face should be avoided if it is uninvolved; if it is involved, cover the face full time once clearance is achieved.

UV opaque goggles should be worn during treatment unless the patient has involvement of the eyelids, in which case they must close their eyes during treatment.

In males, genital protection should be standard practice for patients having UV treatments (unless medical staff request that the genital area is treated).

If the feet are uninvolved, they should be protected with socks.



### **3. Phototherapy in children**

#### Time off school

A treatment course for atopic eczema may take up to 12 months necessitating time away from school for regular treatments and medical reviews. The parents will need to inform the school and explain the necessary precautions.

#### Managing patient anxieties

The phototherapy machines can be quite frightening, even for an adult, therefore it's very important that time is spent explaining to the child how the machine works and how it can help their skin. Allow the child to stand in the machine with the door open, allow them to try on a pair of goggles and explain what will happen on their first visit. Offering encouragement and providing a positive, pleasant environment for the child can help towards successful treatment. It also helps to try and keep the child entertained during the treatments and avoid overheating. Give the treatment in 2 doses, allowing the child to cool down and have a cold drink. Encourage the parent to bring in books to read to the child or use a personal stereo to help pass the time.

### **4. Psoriasis and mycosis fungoides; additional treatment of special sites**

#### Lower legs

If the lower legs appear slow to respond after 6 exposures, give them an additional 20% of the whole body dose, with the feet covered and the patient standing on a platform.

#### Trunk

Once the trunk is clear instruct the patient to wear a T-shirt in the machine and continue with normal increments.

#### Palms

If the palms are affected, they may require a higher dose of UV (eg. 20-50% higher) than the rest of the body to clear. This higher dose may be given from the first treatment, or starting after approximately 6 exposures if they appear slow to respond.

#### Soles

If these are involved, treat them (separately), as for the rest of the body.

#### Knees and elbows (psoriasis)

If other sites are improving but the elbows/knees are not, then consider using Diprosalic under Granuflex applied after each treatment session.



## **5. The treatment of vitiligo**

All patients should be photographed prior to treatment commencement. Patients should be reviewed in clinic at 4-6 weeks, and then after 3 months; if they are not improving at 3 months treatment may be discontinued.

## **6. The treatment of mycosis fungoides**

Careful assessment of shielded areas is needed – give additional treatments as necessary.

PUVA and radiotherapy treatments can be given on the same day. For lesions that have ulcerated and are usually sore for several weeks after radiotherapy, leave dressing intact during PUVA until soreness has settled. Nursing staff should regularly monitor lesions that are not responding to PUVA or are showing a tendency to ulceration. If there is doubt, ask for review by the medical team.

## **7. Finishing a course of phototherapy**

If a patient is clear of disease, phototherapy should be stopped (except in the case of atopic eczema).

The definition of “clear” for psoriasis is that the sites of previous lesions are not palpable; a minor degree of erythema may be acceptable. In psoriasis, if a patient has had minimal residual activity for four treatments, phototherapy should be stopped.

If a patient is failing to improve they should be booked into the next available phototherapy clinic.

The maximum number of treatments per course, except for vitiligo and atopic eczema patients, is 30 unless medical advice is given to the contrary.



## Notes on PUVA therapy

### 1. The use of oral 5-MOP

When treatment with 5-MOP is commenced (either *ab initio* or changing during a course of PUVA from 8-MOP to 5-MOP) the MPD must be assessed.

Ideally 5-MOP should not be used in patients with skin type V-VI.

### 2. Potential drug interactions

Warfarin and phenytoin have significant drug interactions with oral psoralens (Martindale 2005), and therefore patients taking these drugs **should not have oral PUVA**, but can have bath PUVA.

### 3. Re-PUVA (Retinoid + PUVA)

In the treatment of psoriasis, retinoids reduce the cumulative dose and number of exposures required for clearance.

*When a retinoid is prescribed before a course of PUVA*, allow 14 days after the patient starts taking the medication before booking the patient for a MPD test and commencing PUVA.

*When added during a course of PUVA*, continue with the same dose of UVA until day 14 and repeat the MPD; if a MPD test is impossible due to lack of uninvolved skin, then continue with the same dose of UVA for an additional 7 days (total 21 days) then continue with cautious increments. The dose and starting date of the retinoid should be clearly recorded on the treatment sheet in red or green pen.

Dose increments may need to be reduced if the patient develops significant desquamation.

### 4. Sun avoidance

For 24 hours after PUVA therapy, particularly oral PUVA treatment, patients should take precautions when outside (i.e. long sleeves and trousers, hat and sunscreen). Patients should avoid sitting next to a window, particularly on sunny days.

### 5. Guidelines for eye protection for oral PUVA

#### Recommended duration of eye protection after a PUVA session

Adults; 12 hours

Adults with existing cataracts; 24 hours

Children; 24 hours



Bath PUVA; if the patient has atopic eczema, is a child, or has widespread disease (>30% surface area) eye protection should be used for 12 hours; in other cases no protection is required.

### **Method of eye protection**

What follows is taken, with permission, from guidance by Professor B.L. Diffey (Regional Medical Physics Department, Newcastle General Hospital, NE4 6BE) available on the world-wide-web;

<http://www.bad.org.uk/doctors/guidelines/puva.asp>.

### *Sunglasses*

All sunglasses sold in “Boots” retail shops conform with British Standard BS2724. However, this standard is not stringent enough to meet the protection of psoralen sensitised eyes. Patients should be advised to look for those sunglasses which are marked UV400. The lenses in these sunglasses block all wavelengths below 400 nm (i.e. UVA and UVB) and should be the only type recommended to PUVA patients which can be purchased in “Boots”. There are alternative makes available and details of these can be found in these references: Moseley 1988 and British Association of Dermatologists; Protective Eyewear for Photochemotherapy.

### *Prescription Lenses*

Patients who normally wear prescription spectacles and wish to continue wearing these can have them coated with a material which is visibly clear but opaque to both UVA and UVB (Moseley 1990, Moseley 1992). Only plastic lenses can be coated but these comprise 96% of new prescription spectacles in the UK. Patients should be advised to ask opticians for a UV Coating. Because of increasing awareness of the association between sun exposure and the induction of cataract, most opticians are now well aware of the need to offer protection against ultraviolet radiation and can arrange for lenses to be coated at a cost of approximately £10 per pair.

### *Clear Safety Spectacles*

A low cost safety spectacle in clear polycarbonate which is completely opaque to all ultraviolet wavelengths (i.e. blocks UVA and UVB) and which can be recommended at £3:00 per pair (inc. VAT) is the Bolle Coverspec (product code 93BS71) obtainable from St. Helier Safety, St Helier House, Green Lane, Pelaw, Gateshead NE10 0UW (Tel: 0191 469 8421). A more robust safety spectacle (type UVC 303) costing £12:34 per pair (inc. VAT) is obtainable from Ultraviolet Products Limited, Science Park, Milton Road, Cambridge CB4 4FH (Tel: 01223 420022). The ultraviolet absorbing properties of the two spectacles are very similar, and both come with sideshields.





### ***Determining the suitability of spectacles***

Measure the amount of UVA radiation transmitted through the lens with the lamps used for PUVA therapy and a handheld UVA meter (British Photodermatology Group 1994, Diffey 1980). If the meter reads between 10 and 20 mW/cm<sup>2</sup> without the lens in place, the reading needs to fall to at least 0.2 mW/cm<sup>2</sup> and preferably below 0.1 mW/cm<sup>2</sup> in order for the spectacles to provide adequate protection (Mountford 1990)

### **Eye protection in children**

In children, an ophthalmology assessment should be done either before treatment starts or soon after treatment begins. Children are entitled to a NHS voucher to help cover the cost of glasses, which need to be worn for 24 hours following psoralen ingestion. It is important that the child understands the reason for eye protection and is happy with the glasses, in order to ensure that they are worn constantly during daylight hours, especially at school.



## **Maximum dose guidelines**

These are the suggested maximum doses for each exposure.

### **PUVA**

Oral psoralen	15 J/cm <sup>2</sup> *
Bath psoralen	8 J/cm <sup>2</sup>
Oral psoralen for vitiligo	5 J/cm <sup>2</sup>
Bath psoralen for vitiligo	1 J/cm <sup>2</sup>
Gel psoralen for vitiligo	1 J/cm <sup>2</sup>
Hand-foot immersion psoralen	8 J/cm <sup>2</sup>

### **NBUVB**

For indications other than vitiligo	5 J/cm <sup>2</sup>
Vitiligo	2 J/cm <sup>2</sup>

### **UV6**

Maximum dose is 2 J/cm<sup>2</sup>

*(Level of evidence V, except \* which is level of evidence IV, grade C; British Photodermatology Group 1994)*



## **Management of phototherapy-induced erythema**

Examine the patient and ask them for a history of erythema, soreness or itching since their last treatment session.

E1	Just perceptible erythema	Repeat previous dose. Subsequently, reduce increment (eg. instead of 20% increment use 10% increment)
E2	Well defined marked erythema which is asymptomatic or causing minimal discomfort	If the E2 is localised (eg. face), cover this area full-time until settled, and then continue to shield part-time during further treatments. If the E2 is generalised, omit treatment until settled, then repeat previous dose and reduce subsequent increments (eg. instead of 20% increment use 10% increment)
E3	Fiery sore erythema with oedema	No treatment until erythema has settled and patient been reviewed by doctor. Topical steroids, emollients and analgesia may help
E4	Severe fiery erythema with oedema and/or blistering	No treatment. Review by doctor for treatment and plans for alternative treatment when erythema has subsided

## **Missed treatment guidelines**

It should be ascertained that a treatment was not missed due to erythema; if it was, the erythema guidelines should be followed.

Number of days since last treatment:	
<=7	Continue as if no treatments missed
8-10	Repeat last dose
11-15	Reduce dose by 20%, or if this is below the starting dose, give the starting dose
16-20	Reduce dose by 35%, or if this is below the starting dose, give the starting dose
21+	Give a dose between the starting dose and 50% of the previous dose, depending on skin-type, treatment modality, etc.



## **Discharge Guidelines**

If a patient is clear of disease, phototherapy should be stopped (except in the case of atopic eczema).

The definition of “clear” for psoriasis is that the sites of previous lesions are not palpable; a minor degree of erythema may be acceptable. In psoriasis, if a patient has had minimal residual activity for four treatments, phototherapy should be stopped.

If a patient is failing to improve they should be booked into the next available phototherapy clinic.

The maximum number of treatments per course, except for vitiligo and atopic eczema patients, is 30 unless medical advice is given to the contrary.



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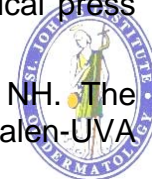
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**Pre-phototherapy assessment form**

Front page:

Initial Phototherapy Assessment – Dowling Day Treatment Centre				
Interview date	<input type="text"/>	Referral source	<input type="text"/>	Hospital No. <input type="text"/>
Surname	<input type="text"/>	Date of birth	<input type="text"/>	Age <input type="text"/> yrs Sex <input type="text"/> M / F
Forename	<input type="text"/>	Address		Telephone
<input type="text"/>		<input type="text"/>		<input type="text"/>
<input type="text"/>		<input type="text"/>		<input type="text"/>
<b>Reason for referral</b> <input type="text"/>				
<b>History</b>	Sun exposure <input type="text"/> indoor / outdoor / tropical	Sunburning episodes <input type="text"/> 0 / 1-2 / >2	Sunbed sessions/yr <input type="text"/> 0 / <20 / >20	
Skin type <input type="text"/>	Photosensitivity <input type="text"/>	Diagnosis <input type="text"/>		
	Cataract <input type="text"/>	Details <input type="text"/>		
	CVS/liver/renal disease <input type="text"/>	Diagnosis <input type="text"/>		
Risk factors	Methotrexate <input type="text"/>	Dates: <input type="text"/>		
	Arsenic <input type="text"/>	<input type="text"/>		
	X-ray <input type="text"/>	<input type="text"/>		
	Cyclosporin <input type="text"/>	<input type="text"/>		
	Acitretin <input type="text"/>	<input type="text"/>		
Other:	<input type="text"/>	<input type="text"/>		
Other diagnoses:	<input type="text"/>			
<input type="text"/>				
<input type="text"/>				
<b>Past history of skin tumour</b>	Type	Site	Year	Histology
<input type="text"/> Y / N	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>Family history of skin tumour</b>	Relationship	Tumour type		
<input type="text"/> Y / N	<input type="text"/>	<input type="text"/>		
	<input type="text"/>	<input type="text"/>		
Outpatient treatment	Daycare treatment	Inpatient treatment	No. of daycare courses	
<input type="text"/> Nil	<input type="text"/> Nil	<input type="text"/> Nil	<input type="text"/>	
<input type="text"/> Tar	<input type="text"/> Tar	<input type="text"/> Tar		
<input type="text"/> Dithranol	<input type="text"/> Dithranol	<input type="text"/> Dithranol		
<input type="text"/> Steroids-topical	<input type="text"/> Steroids-topical	<input type="text"/> Steroids-topical		
<input type="text"/> Steroids-systemic	<input type="text"/> Steroids-systemic	<input type="text"/> Steroids-systemic		



Back page:

<p><b>Current oral medication</b></p> <input style="width: 100%; height: 15px;" type="text"/> <input style="width: 100%; height: 15px;" type="text"/> <input style="width: 100%; height: 15px;" type="text"/> <input style="width: 100%; height: 15px;" type="text"/>	<p><b>Current topical medication</b></p> <input style="width: 100%; height: 15px;" type="text" value="Tar"/> <input style="width: 100%; height: 15px;" type="text" value="Dithranol"/> <input style="width: 100%; height: 15px;" type="text" value="Steroids"/> <input style="width: 100%; height: 15px;" type="text"/>
--	--

Previous PUVA or phototherapy	No. of courses	No. of treatments	Duration (weeks)	Max UV dose (J/cm <sup>2</sup> )	Cum UV dose (J/cm <sup>2</sup> )	Max remission length (months)
Oral PUVA	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>
Topical PUVA	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>
Bath PUVA	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>
NB-UVB	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>
BB-UVB	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>	<input style="width: 30px;" type="text"/>

Laboratory results			
	Requested	Result	Details of abnormalities
Creatinine	<input style="width: 30px;" type="text"/>	<input style="width: 100px;" type="text" value="Normal / Abnormal"/>	<input style="width: 100%; height: 15px;" type="text"/>
LFT	<input style="width: 30px;" type="text"/>	<input style="width: 100px;" type="text" value="Normal / Abnormal"/>	<input style="width: 100%; height: 15px;" type="text"/>
ANA	<input style="width: 30px;" type="text"/>	<input style="width: 100px;" type="text" value="Normal / Abnormal"/>	<input style="width: 100%; height: 15px;" type="text"/>
ENA	<input style="width: 30px;" type="text"/>	<input style="width: 100px;" type="text" value="Normal / Abnormal"/>	<input style="width: 100%; height: 15px;" type="text"/>

Examination findings		Photoaging sun-exposed skin	<input style="width: 100%; height: 15px;" type="text" value="None / Mild / Moderate / Severe"/>
Clinical diagnosis	<input style="width: 100%; height: 15px;" type="text"/> <input style="width: 100%; height: 15px;" type="text"/>	Photoaging non sun-exposed skin	<input style="width: 100%; height: 15px;" type="text" value="None / Mild / Moderate / Severe"/>
		Height <input style="width: 30px;" type="text"/> cm	Weight <input style="width: 30px;" type="text"/> kg
		Surface area <input style="width: 30px;" type="text"/> m <sup>2</sup>	

Affected skin	1 - mild	2 - moderate	3 - severe	Scalp	Face	Front	Back	Arms	Legs	Hands	Feet
				1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3

Treatment	
Psoralen type	<input style="width: 100%; height: 15px;" type="text" value="8-MOP / 5-MOP"/>
Psoralen method	<input style="width: 100%; height: 15px;" type="text" value="Oral / Topical / Bath"/>
PUVA <input style="width: 30px;" type="text"/>	Psoralen dose <input style="width: 30px;" type="text"/> mg
	PUVA <input style="width: 30px;" type="text"/> Whole body / Local
	Local PUVA site <input style="width: 100px;" type="text"/>
NB-UVB <input style="width: 30px;" type="text"/>	NB-UVB <input style="width: 30px;" type="text"/> Whole body / Local
	Local NB-UVB site <input style="width: 100px;" type="text"/>
Proposed frequency <input style="width: 30px;" type="text"/> times /week	Consent <input style="width: 30px;" type="text"/>
Treatment commencement date <input style="width: 100px;" type="text"/>	

Consulting doctor _____	Date _____
-------------------------	------------



## Treating your skin condition with PUVA therapy

---

Your doctor has referred you to the Dowling Day Treatment Centre for a course of PUVA ultraviolet treatment for your skin condition. PUVA is also known as photochemotherapy. This leaflet explains this treatment in detail, including its risks, benefits and alternatives. If you have any questions or concerns, please to speak to a doctor or nurse caring for you.

### What is PUVA?

Ultraviolet (UV) rays are produced by the sun. Although they can't be seen, they are an important part of sunlight and are grouped into different wavelengths: UVA, UVB and UVC. PUVA is a combination of a drug called psoralen (P) and long wave ultraviolet radiation (UVA)- hence the term PUVA. Psoralen UVA rays penetrate skin and cause it to darken or tan. UVB rays are mostly absorbed by the epidermis, which is the top layer of our skin and is responsible for sunburn. UVC rays are absorbed by the Earth's ozone layer, so they do not reach us.

### What can PUVA treat?

It is mainly used to treat psoriasis, eczema, vitiligo, mycosis fungoides, and polymorphic light eruption.

### What does treatment involve?

The psoralen medication is taken by mouth (before coming to the Dowling Day Treatment Unit) or applied to the skin as a paint or lotion, or dissolved in bath water used by the patient in the Dowling Day Unit. Two hours after ingestion of the oral drug or some minutes after application of the paint, lotion or bath water, the required concentration in the skin is reached. The UVA treatment is then given in the Dowling Day Unit by specially trained nurses. You will need to undress and stand in a phototherapy unit, which is a cabinet containing fluorescent tubes that produce UVA rays. Each machine is screened off to make sure your treatment is given in private.

The machine will be turned on and you will be given a calculated dose of PUVA. This is then repeated 2 or 3 times per week over several months. You may feel a warm sensation during treatment, but it will not hurt.



## Why should I have PUVA treatment?

This treatment should help to improve your skin condition. It is often recommended if you have tried ointments and creams without success. However, it is sometimes used in combination with topical treatments.

Most patients with psoriasis find their skin has improved after about 20 treatments and remains clear for three to four months or sometimes longer.

Compared to other forms of phototherapy, PUVA has the following benefits:

- For many conditions you are more likely to have longer periods where your skin condition disappears or improves with PUVA than with narrowband UVB.
- For a number of conditions (though not all) PUVA is more effective than narrowband UVB.

## Are there any other alternatives?

Your doctor recommended this treatment for you. However, there may be other treatments available, such as narrowband UVB, tablets or injections. As well as these treatments, there is a wide variety of creams and ointments that can be used alone or at the same time as your PUVA. Your doctor will explain all the alternatives available to you in more detail. Please make sure you ask questions if you are uncertain.

## Asking for your consent

If you decide to go ahead with this treatment, you will be asked to sign a consent form, which confirms that you agree to have the treatment and understand what it involves. You should receive the leaflet, **Helping you decide: our consent policy**, which gives you more information. If you do not, please ask us for one.

## On the day of your treatment:

**Do not wear perfumes, deodorants, aftershave lotions or other cosmetic products before your treatment.** Some of these contain substances, which make your skin more sensitive to light. This can cause patchy discolouration of the skin and take some months to fade. You can use these after each treatment. For the same reason, please let us know if you have started any new medications or creams, while having treatment, as some can make your skin more sensitive to light.

## Avoid significant alcohol consumption

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**On treatment days please do not apply any creams or ointments to your skin before you go in the machine apart from an appropriate moisturiser**  
You should use a water-based moisturiser such as Aqueous cream or Diprobase. Do not use oily creams, as these could cause burning and prevent the UVA from being absorbed. We suggest that you moisturise beforehand, as this helps your skin to absorb the ultraviolet light. If you are not sure which creams you can use, please ask a member of the day unit staff.

**Reduce your exposure to the sun's rays, even through window glass, to minimise the risk of sunburn. PUVA can cause unpleasant sunburn-type reactions if this is not adhered to. For lotion, paint or bath water PUVA, only the areas of skin where the lotion, paint or bath water has been applied need protection.** Cover up with loose fitting, long sleeved clothes. Use a sunscreen with a factor of at least 20 that protects against UVA and UVB rays. Re-apply it regularly. You may also want to wear a hat after your treatments on sunny days particularly if you don't have a lot of scalp hair. Please do not sunbathe or use a sunbed during the whole course of your treatment.

**If you are having the psoralen as a tablet, you must wear glasses, either your own sunglasses or clear glasses supplied by your optician with special UV filters, from the time when you take the psoralen tablets until nightfall on the day of treatment.** This protects your eyes against damage from PUVA

**Let us know if you have a haircut or if you have any areas that have not been exposed to the ultraviolet light beforehand.**

### **Arriving for your treatment**

Let the nursing staff know you have arrived. At your first visit you will need to have a light test, which allows us to see your skin's tolerance to PUVA. We need this to calculate your safe starting dose. You will need to come back 96 hours afterwards, so we can examine the site where you had the light test. We will then be able to start your treatment.

We usually ask that you remove all your clothing, although you can keep your underwear on if this area of skin is not affected. However, men must either wear dark underwear or cover their genitalia with a sock or jock strap while in the booth. If you wear underwear, please make sure it covers the same area on each visit. If an area of skin that has previously been covered is exposed to the PUVA treatment, it may burn. Please bring a light dressing gown to wear while you are waiting for a machine to become available.

The unit has lockers where you can store your other belongings while you are having your treatment. However, we do not have anywhere to store your dressing gown in between treatments, so you will have to take it home and bring it with you on each treatment day. Please remove any jewellery you are wearing and store it in one of the lockers.

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## What happens during treatment?

The nurse will call you from the waiting room when a machine is available for your treatment. He/she will examine your skin on each visit and ask you some questions before you enter the machine.

We will give you goggles to protect your eyes and tell you how to stand in the machine, to make sure all your affected skin receives the PUVA rays. We will give you specific instructions on how to stand in the machine to ensure that all of your skin is exposed evenly each time. After we have calculated the correct dose for you we will turn the machine on.

The time that you are in the booth will depend on many factors such as your skin type (fair or dark) and skin condition. Your starting dose of PUVA may only be a few seconds and then gradually built up. Please allow 15-30 minutes for your treatment, to allow time for changing. We will explain this to you in more detail before your treatment and will closely monitor the amount of PUVA you receive.

We will increase the dose of PUVA slightly with each treatment. We will make every effort to prevent your skin burning, but if it does, please see the after care advice overleaf.

The machine is quite bright and you may feel warm if you need to stay in the booth for a long time. Let us know if you find it uncomfortable, as we can give your treatment in divided doses.

## How often will I need to have this treatment?

This depends on your skin condition but this treatment is usually quite intensive. We generally give treatments two times a week for about 10 weeks, though this length is different for the treatment of different skin conditions. Therefore, you **must** make sure you can commit this amount of time before you start the course of treatment.

We do our best to keep to your appointment time, but occasionally there may be a short queue. Please ask one of the nurses if you are concerned about your waiting time.

## What are the risks?

Your doctor or nurse will discuss the possible complications of this treatment with you in more detail, but you need to be aware of the following:

- Your skin can occasionally become itchy and dry.
- Some patients feel nauseous after taking the psoralen tablets
- Your skin condition could temporarily worsen.

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- Your skin may burn, with redness and soreness and occasionally blistering, though these effects are usually avoided by careful selection by the staff of the UVA dose which they will give. We will try to avoid this, but some tanning and redness of your skin is likely. Please let us know if your skin does become sunburnt. This usually develops 8-14 hours after your treatment.
- Very occasionally patients develop polymorphic light eruption, which is an itchy rash due to sunlight.
- Long-term use of PUVA (many months to years) ages the skin and increases the risk of developing skin cancer. This increased risk is slight at first, but increases after about 150-200 treatments, and so it is unusual for us to give patients more than 150-200 PUVA treatments in total. For this reason, we also do not give PUVA therapy between courses.
- If you do not wear the protective goggles in the unit, you risk developing sunburn like reaction to your eyes within a few hours of exposure. You may open your eyes during treatments only when you are wearing the protective goggles provided. In the long term, it is possible that a lot of PUVA treatment increases the risk of developing cataracts in the eyes. This risk is probably very low as long as you wear the glasses and goggles as advised.
- Although there is no evidence that PUVA can damage a developing foetus, nevertheless if pregnancy is suspected it is advisable for absolute safety for the baby to stop PUVA until delivery, particularly if the psoralen is being taken in the tablet form.

PUVA is most suitable for people with extensive skin problems, but may not be appropriate for you if you have very fair skin, or if your condition becomes worse in sunlight.

If you have rosacea or a history of cold sores, we will shield your face during treatment.

It is also important to note that your skin condition may flare up again. If it does, you will need further treatments of PUVA or other another type of treatment in the future to manage it.

## What do I need to do after my treatment?

You may want to apply your moisturiser or other creams and ointments after your treatment. Cubicles are available for you to do this in. The nurses will be able to help you if needed. You can then get dressed, book your next appointment and go home.

If you develop sunburn it is important to contact the unit as soon as you can so that we can assess your symptoms, please treat your skin as you usually would after a sunburn. If it is severe, please phone the unit for advice. However, this is very rare.

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## Who can I contact for more information?

If you have any questions or concerns about your treatment, please contact the Dowling Day Unit 020 7188 6275/6290.

### **PALS**

If you need information, support or advice about our services, you can contact our Patient Advice and Liaison Service (PALS). Ask a member of hospital staff to direct you to the PALS office or phone **020 7188 8801** at St Thomas' or **020 7188 8803** at Guy's. Email [pals@gstt.nhs.uk](mailto:pals@gstt.nhs.uk)

### **Language Support Services**

If you need an interpreter or information about the care you are receiving in the language or format of your choice, please call **020 7188 8815**, fax **020 7188 5953** or email

[languagesupport@gstt.nhs.uk](mailto:languagesupport@gstt.nhs.uk)

## Are there any follow-up appointments?

You will be able to book your PUVA appointments in advance if you wish. Please remember to keep all your appointments and let us know if you cannot attend for any reason. You will usually have a follow-up appointment six to eight weeks after your treatment, or sooner if you are having problems.

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### Appendix 3

## Treating your skin condition with narrowband ultraviolet B radiation (NB-UVB)

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Your doctor has referred you to the Dowling Day Treatment Centre for a course of narrow band ultraviolet treatment for your skin condition. Narrowband UVB is also known as TLO-1. This leaflet explains this treatment in detail, including its risks, benefits and alternatives. If you have any questions or concerns, please to speak to a doctor or nurse caring for you.

### What is ultraviolet B radiation (UVB)?

Ultraviolet (UV) rays are produced by the sun. Although they can't be seen, they are an important part of sunlight and are grouped into different wavelengths: UVA, UVB and UVC.

UVA rays penetrate skin and cause it to darken or tan. UVB rays are mostly absorbed by the epidermis, which is the top layer of our skin and is responsible for sunburn. UVC rays are absorbed by the Earth's ozone layer, so they do not reach us.

Broad band UVB radiation has been found to treat skin conditions that are caused by overactive immune cells in the skin, as it reduces their activity. A specific wavelength of UVB (311 to 312nm) is thought to be the most useful range for treating skin conditions. This is referred to as narrowband UVB or TLO-1.

Treatment with UV is often referred to as phototherapy.

### What can narrow band UVB treat?

It is mainly used to treat psoriasis, but it can also be used for other skin conditions such as acne, eczema, vitiligo, mycosis fungoides, and polymorphic light eruption.

### What does treatment involve?

The treatment is given in the Dowling Day Unit by specially trained nurses. You will need to undress and stand in a phototherapy unit, which is a cabinet containing fluorescent tubes that produce UVB rays. Each machine is screened off to make sure your treatment is given in private.

The machine will be turned on and you will be given a calculated dose of narrow band UVB. This is then repeated 2 or 3 times per week over several months. You may feel a warm sensation during treatment, but it will not hurt.

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## Why should I have narrowband UVB treatment?

This treatment should help to improve your skin condition. It is often recommended if you have tried ointments and creams without success. However, it is sometimes used in combination with other treatments.

Most patients with psoriasis find their skin has improved after about 30 treatments and remains clear for three to four months or sometimes longer.

Compared to other forms of phototherapy, narrow band UVB has the following benefits:

- For many conditions you are more likely to have longer periods where your skin condition disappears or improves with narrowband UVB than with broadband UVB.
- For many (though not all) conditions, narrowband UVB is as effective as PUVA but with fewer side effects.

## Are there any other alternatives?

Your doctor recommended this treatment for you. However, there may be other treatments available, such as broad band UVB and PUVA. PUVA involves making your skin sensitive to light by taking tablets and then exposing it to UVA radiation.

As well as these treatments, there is a wide variety of creams and ointments that can be used alone or at the same time as your UVB. Oral medications or injections may also be options to consider. Your doctor will explain all the alternatives available to you in more detail. Please make sure you ask questions if you are uncertain.

## Asking for your consent

If you decide to go ahead with this treatment, you will be asked to sign a consent form, which confirms that you agree to have the treatment and understand what it involves. You should receive the leaflet, **Helping you decide: our consent policy**, which gives you more information. If you do not, please ask us for one.

## On the day of your treatment:

**Do not wear perfumes, deodorants, aftershave lotions or other cosmetic products before your treatment.** Some of these contain substances, which make your skin more sensitive to light. This can cause patchy discolouration of the skin and take some months to fade. You can use these after each treatment. For the same reason, please let us know if you have **started any new medications or creams**, while having treatment, as some can make your skin more sensitive to light.

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**On treatment days please do not apply any creams or ointments to your skin before you go in the machine apart from an appropriate moisturiser** You should use a water-based moisturiser such as Aqueous cream, E45 or Diprobase. Do not use oily creams, as these could cause burning and prevent the UVB from being absorbed. We suggest that you moisturise beforehand, as this helps your skin to absorb the ultraviolet light. If you are not sure which creams you can use, please ask a member of the day unit staff.

**Reduce your exposure to the sun's rays, to minimise the risk of sunburn.** Cover up with long sleeved clothes, particularly on sunny days; you may also want to wear a hat. Use a sunscreen with a factor of at least 20 that protects against UVA and UVB rays. Re-apply it regularly. Please do not sunbathe or use a sunbed during the whole course of your treatment.

**Let us know if you have a haircut or, for any other reason, any areas of skin become newly exposed during the course of treatment.**

### **Arriving for your treatment**

Let the nursing staff know you have arrived. At your first visit you will need to have a light test, which allows us to see your skin's tolerance to UVB. We need this to calculate your safe starting dose. You will need to come back 24 hours afterwards, so we can examine the site where you had the light test. We will then be able to start your treatment.

We usually ask that you remove all your clothing, although you can keep your underwear on if this area of skin is not affected. However, men must either wear dark underwear or cover their genitalia with a sock or jock strap while in the booth. If you wear underwear, please make sure it covers the same area on each visit. If an area of skin that has previously been covered is exposed to the UVB treatment, it may burn. Please bring a light dressing gown to wear while you are waiting for a machine to become available.

The unit has lockers where you can store your other belongings while you are having your treatment. However, we do not have anywhere to store your dressing gown in between treatments, so you will have to take it home and bring it with you on each treatment day. Please remove any jewellery you are wearing and store it in one of the lockers.

### **What happens during treatment?**

The nurse will call you from the waiting room when a machine is available for your treatment. He/she will examine your skin on each visit and ask you some questions before you enter the machine.

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We will give you goggles to protect your eyes and tell you how to stand in the machine, to make sure all your affected skin receives the UVB rays. We will give you specific instructions on how to stand in the machine to ensure that all of your skin is exposed evenly each time. After we have calculated the correct dose for you we will turn the machine on.

The time that you are in the booth will depend on many factors such as your skin type (fair or dark) and skin condition. Your starting dose of UVB may only be a few seconds and then gradually built up. Please allow 15-30 minutes for your treatment, to allow time for changing. We will explain this to you in more detail before your treatment and will closely monitor the amount of UVB you receive. We will increase the dose of UVB slightly with each treatment as long as you have tolerated the previous treatment.

The machine is quite bright and you may feel warm if you need to stay in the booth for a long time. Let us know if you find it uncomfortable, as we can give your treatment in divided doses.

### **How often will I need to have this treatment?**

This depends on your skin condition but this treatment is usually quite intensive. We generally give treatments two to three times a week for about 20 weeks. Therefore, you **must** make sure you can commit this amount of time before you start the course of treatment.

We do our best to keep to your appointment time, but occasionally there may be a short queue. Please ask one of the nurses if you are concerned about your waiting time.

### **What are the risks?**

Your doctor or nurse will discuss the possible complications of this treatment with you in more detail, but you need to be aware of the following:

- Your skin can occasionally become itchy and dry.
- Your skin condition could temporarily worsen.
- Your skin may burn, as with any form of sunlight. We will try to avoid this, but some tanning and redness of your skin is likely. Please let us know if your skin does become sunburnt. This usually develops 8-14 hours after your treatment and usually settles within 24 hours.
- Very occasionally patients develop polymorphic light eruption, which is an itchy rash due to sunlight.
- As with too much sun exposure, long-term use of UVB (many months to years) may age your skin and increase your risk of developing skin cancer. This increased risk is very slight at first, but increases after about 200-300 treatments. For this reason, we do not give UVB therapy between courses.

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- If you do not wear the protective goggles in the unit, you risk developing sunburn like reaction to your eyes within a few hours of exposure. . It may also increase your risk of developing eye cataracts in the future. You may open your eyes during treatments only when you are wearing the protective goggles provided
- If you have rosacea or a history of cold sores which can be aggravated by the sun, we will shield your face during treatment.

UVB is most suitable for people with extensive skin problems, but may not be appropriate for you if you have very fair skin, or if your condition becomes worse in sunlight.

It is also important to note that your skin condition may flare up again. If it does, you will need further treatments of UVB or other another type of treatment in the future to manage it.

### **What do I need to do after my treatment?**

You may want to apply your moisturiser or other creams and ointments after your treatment. Cubicles are available for you to do this in. The nurses will be able to help you if needed. You can then get dressed, book your next appointment and go home.

UVB tends to cause dryness to the skin so you may find it more comfortable to use your moisturiser regularly, usually twice a day.

If you develop sunburn please treat your skin as you usually would after sunburn. If it is severe, please phone the unit for advice. However this is very rare. Please remember to inform the nurses of any reactions you have from your treatments so that your time in the machine can be

### **Are there any follow-up appointments?**

You will be able to book your UVB appointments in advance if you wish. Please remember to keep all your appointments and let us know if you cannot attend for any reason. You will usually have a follow-up appointment six to eight weeks after your treatment, or sooner if you are having problems.

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## Who can I contact for more information?

If you have any questions or concerns about your treatment, please contact the Dowling Day Unit 020 7188 6275/6290.

### PALS

If you need information, support or advice about our services, you can contact our Patient Advice and Liaison Service (PALS). Ask a member of hospital staff to direct you to the PALS office or phone **020 7188 8801** at St Thomas' or **020 7188 8803** at Guy's. Email [pals@gstt.nhs.uk](mailto:pals@gstt.nhs.uk)

### Language Support Services

If you need an interpreter or information about the care you are receiving in the language or format of your choice, please call **020 7188 8815**, fax **020 7188 5953** or email [languagesupport@gstt.nhs.uk](mailto:languagesupport@gstt.nhs.uk)



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*Phototherapy Guidelines*  
Version 3 RS/TG  
02/11/2009

Page 55 of 61



## Treating your skin condition with Broadband ultraviolet B radiation (BB-UVB)

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Your doctor has referred you to the Dowling Day Treatment Centre for a course of broad band ultraviolet treatment for your skin condition. This leaflet explains what this treatment involves, including its risks, benefits and alternatives. If you have any questions or concerns, please to speak to a doctor or nurse caring for you.

### What is ultraviolet B radiation (UVB)?

Ultraviolet (UV) rays are produced by the sun. Although they can't be seen, they are an important part of sunlight and are grouped into different wavelengths: UVA, UVB and UVC.

UVA rays penetrate skin and cause it to darken or tan. UVB rays are mostly absorbed by the epidermis, which is the top layer of our skin and is responsible for sunburn. UVC rays are absorbed by the Earth's ozone layer, so they do not reach us.

Broad band UVB radiation has been found to be effective in treating skin conditions that are caused by overactive immune cells in the skin, as it reduces their activity. This treatment is often referred to as phototherapy

### What can broad band UVB treat?

It is mainly used to treat the skin condition psoriasis, but can also help with eczema and some rarer conditions.

### What does treatment involve?

The treatment is given in the Dowling Day Unit by specially trained nurses. You will need to undress and stand in a phototherapy unit, which is a cabinet containing fluorescent tubes that produce UVB rays. Each machine is screened off to make sure your treatment is given in private.

The machine will be turned on and you will be given a calculated dose of broad band UVB. This is then repeated three times per week over several months. You may feel a warm sensation during treatment, but it will not hurt.





## Why should I have broad band UVB treatment?

This treatment should help to improve your skin condition. It is often recommended if you have tried ointments and creams without success. However, it is sometimes used in combination with other treatments.

Most patients with psoriasis find their skin has improved after about 30 treatments and remains clear for three to four months.

## Are there any other alternatives?

Your doctor has recommended this treatment for you. However, there may be other treatments available, such as narrow band UVB (a specific wavelength of UVB) and PUVA. PUVA involves making your skin sensitive to light and then exposing it to UVA light.

As well as these treatments, there is a wide variety of creams and ointments that can be used alone or at the same time as your UVB. Oral medications or injections may also be options to consider. Your doctor will explain all the alternatives available to you in more detail. Please make sure you ask questions if you are uncertain.

## Asking for your consent

If you decide to go ahead with this treatment, you will be asked to sign a consent form, which confirms that you agree to have the treatment and understand what it involves. You should receive the leaflet, **Helping you decide: our consent policy**, which gives you more information. If you do not, please ask us for one.

## On the day of your treatment:

**Do not wear perfumes, deodorants, aftershave lotions or other cosmetic products.** Some of these contain additives, which make your skin more sensitive to light. This can cause patchy discolouration of the skin and take some months to fade. You can use these after each treatment. For the same reason, please let us know if you have started any **new medications or creams** while having treatment, as some can make your skin more sensitive to light.

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**On treatment days please do not apply any creams or ointments to your skin before you go in the machine apart from an appropriate moisturiser.** . You should use a water-based moisturiser such as Aqueous cream, E45 or Diprobase. Do not use oily creams, as these could cause burning or prevent the UVB from being absorbed. We suggest that you moisturise beforehand, as this helps your skin to absorb the ultraviolet light. If you are not sure which creams you can use, please ask a member of the day unit staff.

**Reduce your exposure to the sun's rays, to minimise the risk of sunburn.** Cover up with long sleeved clothes particularly on sunny days; you may want to wear a hat as well. Use a sunscreen with a factor of at least 20 that protects against UVA and UVB rays. Re-apply it regularly. Please do not sunbathe or use a sunbed during the whole course of your treatment.

**Let us know if you have a haircut or, for any other reason, any areas of skin become newly exposed during the course of treatment.**

### **Arriving for your treatment**

Let the nursing staff know you have arrived. At your first visit you will need to have a light test, which allows us to see your skin's tolerance to UVB. We need this to calculate your safe starting dose. You will need to come back 24 hours afterwards, so we can examine the site where you had the light test. We will then be able to start your treatment.

We usually ask that you remove all your clothing, although you can keep your underwear on if this area of skin is not affected. However, men must either wear underwear or cover their genitalia with a sock or jock strap at all times while in the machine. If you wear underwear, please make sure it covers the same area on each visit. If an area of skin has previously been covered, it may burn if exposed to the UVB treatment. Please bring a light dressing gown to wear while you are waiting for a machine to become available.

The unit has lockers where you can store your other belongings while you are having your treatment. However, we do not have anywhere to store your dressing gown in between treatments, so you will have to take it home and bring it with you on each treatment day. .

### **What happens during treatment?**

The nurse will call you from the waiting room when a machine is available for your treatment. He/she will examine your skin on each visit and ask you some questions before you enter the machine.

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We will give you goggles to protect your eyes and tell you how to stand in the machine, to make sure all your affected skin receives the UVB rays. After we have calculated the correct dose for you we will turn the machine on.

The time that you are in the machine will depend on a number of factors such as your skin type (fair or dark) and skin condition. Your starting dose of UVB may only be a few seconds and then gradually built up. Please allow 15-30 minutes for your treatment, to allow time for changing. We will explain this to you in more detail before your treatment and will closely monitor the amount of UVB you receive. We will increase the dose of UVB slightly with each treatment as long as you have tolerated the previous dose.

The machine is quite bright and you may feel warm if you need to stay in the machine for a long time. Let us know if you find it uncomfortable, as we can give your treatment in divided doses.

### **How often will I need to have this treatment?**

This depends on your skin condition but this treatment is usually quite intensive. We generally give treatments three times a week for about 10 weeks. Therefore, you **must** make sure you can commit this amount of time before you start the course of treatment.

We do our best to keep to your appointment time, but occasionally there may be a short queue. Please ask one of the nurses if you are concerned about your waiting time.

### **What are the risks?**

Your doctor or nurse will discuss the possible complications of this treatment with you in more detail, but you need to be aware of the following:

- Your skin can occasionally become itchy and dry.
- Your skin condition could temporarily worsen.
- Your skin may burn, as with any form of sunlight. We will try to avoid this, but some tanning and redness of your skin is likely. Please let us know if your skin does become sunburnt. This usually develops 8-14 hours after your treatment and usually settles within 24 hours.
- Very occasionally patients develop polymorphic light eruption which is an itchy rash due to sunlight.

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- As with too much sun exposure, long-term use of UVB (many months to years) may age your skin and increase your risk of developing skin cancer. This increased risk is very slight at first, but gradually increases after about 200-300 treatments. For this reason, we do not give UVB therapy between courses.
- If you do not wear the protective goggles in the machine, you are likely to develop a sunburn type reaction to your eyes within a few hours of treatment which will require urgent medical attention. It may also increase your risk of developing eye cataracts in the future. You may open your eyes during treatments only when you are wearing the protective goggles provided
- If you have rosacea or a history of cold sores which can be aggravated by the sun, we will shield your face during treatment.

It is also important to note that your skin condition may flare up again. If it does you will need further treatments of UVB or other another type of treatment in the future to manage it.

UVB is most suitable for people with extensive psoriasis, eczema and some other rarer skin conditions, but may not be appropriate for you if you have very fair skin, or if your skin condition becomes worse in sunlight.

### **What do I need to do after my treatment?**

You may want to apply your moisturiser or other creams and ointments after your treatment. Cubicles are available for you to do this in. The nurses will be able to help you if needed. You can then get dressed, book your next appointment and go home. UVB tends to cause dryness to the skin so you may find it more comfortable to use your moisturiser regularly, usually twice a day.

If you develop sunburn please treat your skin as you usually would after sunburn. If it is severe, please phone the unit for advice. However this is very rare. Please remember to inform the nurses of any reactions you have from your treatments so that your time in the machine can be adjusted.

### **Are there any follow-up appointments?**

You will be able to book your UVB appointments in advance. Please remember to keep all your appointments and let us know if you cannot attend for any reason. Often you will not need a follow-up appointment. You will be discharged from the unit when your condition has cleared. Alternatively if the treatment is not helping, we will refer you back to your doctor for alternative treatment.



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**Language Support Services**

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**Knowledge & Information Centre (KIC):** If you want more information about health conditions, support groups and local services, or want to search the internet and send emails, please visit the KIC on the Ground Floor, North Wing, St Thomas' Hospital. Tel: **020 7188 3416**, email [kic@gstt.nhs.uk](mailto:kic@gstt.nhs.uk) or visit [www.kic.gstt.nhs.uk](http://www.kic.gstt.nhs.uk)

