



Crumlin | Temple Street | Tallaght | Connolly

PHOTOTHERAPY – TL01 ADMINISTRATION GUIDELINE

Area of use:	All of organisation <input checked="" type="checkbox"/>	CHI at Connolly <input type="checkbox"/>	CHI at Crumlin <input type="checkbox"/>
	CHI at Herberton <input type="checkbox"/>	CHI at Tallaght <input type="checkbox"/>	CHI at Temple Street <input type="checkbox"/>
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1.0 Introduction

TL01 is delivered by a phototherapy machine (walk in cabinet) that emits ultraviolet radiation between wavelengths of 311nm – 313 nm for the treatment of an inflammatory dermatosis (Honingsmann 2020). Treatment is prescribed and monitored by a Consultant Dermatologist (Sarkany et al 2016) and administered by two trained nurses twice or three times a week.

2.0 Definition of Guideline

Phototherapy is the name given to the treatment of skin disorders by an ultraviolet machine (Morita 2017).

Narrowband refers to the specific wavelengths of 311nm – 313 nm (nanometers) that are emitted from the TL01 machine (Honingsmann 2021). This machine has 24 fluorescent bulbs with blue and red stripes.

M.E.D. or Minimal Erythema Dose - this is a procedure to calculate the starting dose of the patient's initial treatment (See Guidelines for Minimal Erythema Dose in Phototherapy).

3.0 Applicable to

Nursing and Medical Dermatology team - The services are administered by appropriately registered, trained and experienced dermatology nursing staff who have completed phototherapy competencies (Sarkany et al 2016)

TL01 is effective for skin disorders in the dermatology department. It is used to treat the following skin conditions:

- **Atopic Dermatitis** - Frequency of treatment: generally, twice per week
 - Initial increments 20%
 - Maximum single dose 2-3 J/cm²

 - **Psoriasis** - frequency of treatment: three times a week
 - Initial increments 20%

 - **Vitiligo** - frequency of treatment twice per week
 - Initial dose 100mj/cm². Increments 20%
 - Maximum single dose 2J/cm²
- (Sarkany 2012)
- Psoriasis - Maximum single dose 2-3j/cm² (as indicated by Consultant)
 - Actinic Prurigo (as indicated by Consultant)
 - Polymorphic Light eruption (as indicated by Consultant)

4.0 Objective of the Guideline

The objective or outcome of the TL01 guideline to guide safe administration of the therapy so the patient's skin condition has significantly improved, resolved or gone into remission depending on the skin condition

5.0 Implementation Plan

5.1 Process

- Determine MED (minimal erythema dose) on first visit, read after 24 hours (See guidelines for MED).
- Starting dose is calculated at 70% of the MED dose.
- Treatment is given twice or three times per week depending on skin condition or as per Consultant.
- Incremental dosage depends on the skin condition being treated and the erythema response.
- In most conditions, the initial increments are 20% reducing as according to response to treatment. The doses are calibrated by medical physician every 4-6 months.
- In Vitiligo, the starting dose of 100mj/cm² with 20% increments thereafter.
- Treatment continues until clearance unless otherwise instructed by Consultant.
- Patients are reviewed by dermatology team every 2-3 weeks unless any adverse reactions noted.
- The maximum dose will be determined by skin disease and phototype:
 - Psoriasis -2,000-3,000mj/cm²: Atopic Eczema 2,000-3,000mj/cm² and Vitiligo – 2,000 mj/cm²;

The dose increase is determined by the previous treatment (Honingsmann 2020).

Erythema Response can peak at 24 hours after treatment and to proceed as follows:

E0 – No erythema – Increase by 10% -20% as prescribed.
E1 – Just perceptible erythema –Repeat previous dose and continue increments for following treatments. If E1 is repeated reduce the percentage increments from 20% to 10%. In psoriasis if patient has E1x 2 reduce to 10% increments.
E2 - Well defined – Postpone one treatment, repeat penultimate dose at next visit. Reduce subsequent increments to half the usual incremental dose.
E3 – Red and painful – No treatment until erythema has settled and doctor has reviewed the patient. Topical steroids, emollients and analgesia will be prescribed.
E4 – Severe fiery erythema with oedema and/or blistering. No treatment. Review by Consultant. - oral/topical steroids, emollients and analgesia will be needed. Review phototherapy plan.

(Sarkany 2012)

5.3 If patient misses or cancels treatments the treatment should proceed as follows: Caution with Skin Type I.

Number of days since last treatment	<=7	Continue as if no treatment 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 the skin type, treatment modality, etc.

(Sarkany et al 2012)

5.4 Complications that can occur

Short Term

- Itch
- Erythema (4.1 Erythematous Response)
- Polymorphic Light Eruption (caused by intermittent sunlight or artificial light eruption)
- Herpes Simplex Activation

Long Term

- Skin Aging
- Skin Cancer

(Hum et al 2019)

RATIONALE	ACTION
<p>Consent</p> <p>The consultant will have assessed the patient and prescribed phototherapy. Full explanation of treatment, side-effects and long term risks are discussed with parent. Written leaflet is given prior to treatment and orientation of the ultraviolet room</p> <p>Initial nursing and medical assessment of the guardians/patients understanding of the skin condition, relevant medical history, medication (prescribed over the counter) and past sun exposure. Treatment is explained by medical team and consent for treatment obtained.</p> <p>Prior to initial treatment, starting dose from minimal erythema dose is obtained.</p> <p>Treatment</p> <p>Nurse identifies the patient, check in details against relevant documentation.</p> <p>Prior to each treatment, unaffected skin is assessed by the nurse for pigmentation, and erythema. Progress of treatment is noted It is also necessary to check use of additional skin treatments.</p> <p>If the patient has developed any erythema the nurse would consult the erythema guidelines</p> <p>Two nurses' check the dose administered previously, current incremental dose and increased UV dosage in order to determine ultraviolet dosage and time. Dosage keyed in is double checked to ensure correct dose given.</p> <p>Patients' need to maintain consistent hairstyles when having treatment.</p> <p>Patients and staff must wear UV protective goggles once the UV cabinet is running.</p> <p>The face is protected with a UV protective visor unless otherwise instructed by the doctor.</p>	<p>To help reduce anxiety of the child and parents by appropriately informing them of treatment. (Trigg and Mohammed 2010)</p> <p>Parents and patients are fully informed of its potential and chronic effects to ensure informed consent. (Garibaldinos et al 2011)</p> <p>See Guideline on Minimal Erythema Dose.</p> <p>To assess patients skin for erythematous response or other short term effects itch, polymorphic light eruption or herpes simplex (Honingsman 2020).</p> <p>Adjustments to treatments are made according to erythematous response (Honingsmann 2020)</p> <p>To ensure patient receives correct phototherapy dose</p> <p>To avoid the risk of erythema on unexposed skin.</p> <p>To prevent conjunctivitis or keratitis (Honingsmann 2020)</p> <p>To prevent unnecessary exposure to UV light</p>

<p>The child is usually treated without any clothes unless directed by consultant. Males to cover genital area and wear same type of cover for every treatment (G-string).</p> <p>The nurse checks the patient is standing in the correct position in the cabinet. If the child is small or if they need additional treatment to lower legs, a stool is used.</p> <p>Before starting the machine inform the guardian / patient how long the treatment will be. Stay in close attendance during treatment and give regular time checks to the patient.</p> <p>Post Treatment</p> <p>Ensure patient applies emollient following treatment and twice daily at home.</p> <p>Patients are also reminded to avoid unnecessary sun exposure and wear sun factor 50 from April to October.</p> <p>Complete documentation on treatment sheet with two signature of two nurses.</p> <p>Phototherapy services can have a high turnover of patients. To maintain patient safely it is essential that infection control measures are in place.</p> <ul style="list-style-type: none"> • Wipe down handrail with Azowipe between each patient. • Cleaning of the machines using PlastiSept once weekly. • A separate mat to be used in UV cabinet for each patient to stand on. <p>Ensure that patients are assessed by Consultant /SpR in Dermatology every 8-10 treatments</p>	<p>Genital shields are required for male patients (Elmets et al 2019)</p> <p>To allow the patient feel safe, secure and reassured (Hockenberry et al 2015)</p> <p>Frequent applications of moisturiser is encouraged (Hum et al 2019).</p> <p>To protect skin from unnecessary ultraviolet exposure.</p> <p>To enhance communication and recording of clinical practice (NMBI 2015)</p> <p>As per CHI guideline on Standard Precautions (2019)</p> <p>To monitor progress (Sarkany et al 2016)</p> <p>Treatment continues until remission is attained or no further improvement can be seen (Honingsmann 2020).</p>
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6.0 Evaluation and Audit

A summary sheet is completed after each patient and details will be kept for future treatment in CHI Crumlin or when they progress to adult services.

Summary of services of all patients, numbers, side effects and protocols are discussed at Annual Safety Meeting

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7.0 References

Children's Health Ireland (2019) *Standard Universal Precautions*, CHI, Crumlin Dublin

Elmets CA, Lim HW., Stoff B. (2019) Joint American Academy of Dermatology-National Psoriasis Foundation guidelines of care for the management and treatment of psoriasis with phototherapy. *Journal Academy Dermatology* 81(3) 775-804

Garibaldinos T., Stephen K. (2011) Phototherapies for dermatological conditions *Dermatology Nursing* Vol 10 No.4 p 30-36

Hockenberry, MJ, Wilson D., & Rodgers (2015) *Wong's Essential of Paediatric Nursing* 10th Edition. Mosby, St. Louis

Honingsmann H. (2020) UVB therapy (broadband and narrowband) <https://www.uptodate.com/contents/uvb-therapy-broadband-and-narrowband> Obtained 11/02/2022

Hum M., Kalia S., and Gniadecki R. (2019) Prescribing Home Narrowband UVB Phototherapy: A review of Current Approaches *Journal of Cutaneous Medicine and Surgery* 23(1) 91-96

Morita A (2018) Current Developments in phototherapy for psoriasis. *Journal of Dermatology* 45: 287-292

Nursing and Midwifery Board of Ireland (2015) *Recording Clinical Practice: Professional Guidance to Nurses and Midwives* NMBI Dublin

Sarkany R. (2012) *Phototherapy Guidelines St John's Institute of dermatology*. St. Thomas' Hospital, London

Sarkany, R., Von Hostenenthal T., Callaghan P, Level n., Bleiker T., Ling T., Goulden V., Dunnhill G, Edwards C., Crawley J., Kaur M., Dawe R., Garibaldinos (2016) *Phototherapy Service Guidance* British Photodermatology Group

Trigg, E. and Mohammed T (2010) *Practices in Children's Nursing: Guidelines for Community and Hospital* 3rd edn. Churchill Livingstone, Edinburgh

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