



Crumlin | Temple Street | Tallaght | Connolly

PHOTOTHERAPY – MINIMAL ERYTHEMA DOSE GUIDELINE

Area of use:	All of organisation <input type="checkbox"/>	CHI at Connolly <input type="checkbox"/>	CHI at Crumlin <input checked="" 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 Policy statement

Minimal erythema dose (M.E.D.) is a test to determine a safe initial dose for commencing TL01 (de Grey 2016). It can be performed one of two ways. A UV canopy is placed over the patient's back and with a template against the skin, expose each box to a different incremental dose of light (British Association of Dermatologists 2020). The second method is using a hand held meter. The starting dose is 70% of square that shows the minimal erythema mark on the skin after 24 hours (Yanovsky et al 2020).

2.0 Applicable to

MED is performed by trained and experienced dermatology nurses (Sarkany et al 2016). The doses for MED are calculated by a medical physicist and increments are tabled on a spread sheet. The MED measurements for the different categories are decided by the patients Skin Type.

3.0 Definition/Terms

3.1. The MED

The MED is defined as the lowest dose that causes a minimal perceptible erythema reaction with distinct borders 24 hours after irradiation (Honingsmann 2020).

Types of MED machine

- This MED machine is on a movable canopy that is comprised of eleven ultraviolet tubes. It can be adjusted in height so that it is 20cms from the patient's back. Then using an eight-hole template, incremental measures of ultraviolet light is shone onto the patient's back.
- The hand held meter device is of a single 9 W Narrow band fluorescent tubes (311 nm - 313nm) fitted in a hand held enclosure (Dermalight) with 10 openings of incremental doses of 1.26 (Britton 2020). This is applied directly to patient's skin.

3.2 Skin Typing

Skin Type- According to Fitzpatrick's Scale:

- Type 1- Always burns, never tans
- Type II- Always burns, sometimes tans
- Type III- Sometimes burns, always tans
- Type IV- Rarely burns, always tans
- Type V- Moderately Pigmented Skin (Asian)
- Type VII- Black Skin (African)

4.0 Implementation Plan

RATIONALE	ACTION
<p>Carefully explain procedure to patient and parent.</p> <p>Ask patient to remove clothing to the waist and put on UV protective gown with the opening at the back.</p> <p>Patient/parent and staff to wear UV protective glasses during procedure.</p> <p>Ultraviolet canopy Place the template on the part of the patient's back that is flat, clear of lesions and is at least 3cms away from the spine.</p> <p>Determine the patient's skin type. M.E.D. doses are calculated according to skin types and increments are tabled onto a spreadsheet. The nurse administering the MED calculates and prescribes the dose and double checks it with a second person.</p> <p>Position the test site 20 cms from the light source. Expose all windows when commencing test and close relevant window after each increment is complete.</p> <p>Afterwards, mark the skin with a pen where the opened windows were to create squares to identify the test sites.</p> <p>Hand Held Meter Nurse performing the test should wear cotton protective gloves.</p> <p>Switch the machine on and allow to warm up for four minutes and lie the machine face down with a fabric cover.</p> <p>Then adjust the exposure time on the machine.</p> <p>Hold the meter against a suitable part of patients such as lower back/buttocks inner arm. Then press mode button to start.</p>	<p>To help reduce anxiety of child and parents, by appropriately them of treatment (Trigg and Mohamed 2010)</p> <p>To prevent unnecessary exposure to ultraviolet radiation.</p> <p>To prevent conjunctivitis or keratitis (Yanovsky 2020))</p> <p>The selection of doses is based on the skin type- Fitzpatrick's Scale (Yanovsky et al 2020).</p> <p>So that each square exposed will have a different dose of radiation (Sarkany 2012).</p> <p>This mark identifies the test location to be read after 24 hours.</p> <p>To prevent exposure of UV light (Batchelor 2021).</p> <p>As advised by the manufacturer (Britton 2020).</p> <p>Exposure times are developed by manufacturer and divided according to Skin Type.</p> <p>Note: the manufacturer gives 2 exposure times in seconds and advise that the shorter times are used.</p>

<p>End of exposure time is indicated by beep and switches off.</p> <p>Mark the 10 boxes of the template where the skin has been exposed</p> <p>When testing is complete, arrange for the patient to return after 24 hours for the area to be marking to be assessed.</p> <p>The testing equipment including the mask and goggles should be cleaned with antiseptic cleaner.</p> <p>The meter should be cleaned with alcohol and water free disinfectant after use –PlastiSept Wipes.</p> <p>M.E.D. Reading</p> <p>The following day, the markings of the template on upper back are assessed</p> <p>The minimal erythema dose is the lowest dose that produces pink erythema with four distinct borders.</p> <p>The first treatment dose of ultraviolet light is then calculated using 70% of the MED.</p> <p>If the skin is sensitive 50% of MED is calculated.</p> <p>Document all care given.</p>	<p>To identify the test location on the back.</p> <p>Returning in 24 hours for reading of the MED test (Yanovsky et al. 2020)</p> <p>As per manufacturers instruction and in accordance with CHI guideline on Standard Precautions (CHI 2019).</p> <p>As per guidelines (Sarkany 2012)</p> <p>To enhance communication and recording of clinical practice (NMBI 2015).</p>
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5.0 References

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