

PAEDIATRIC NURSING PRACTICE MANUAL  
SECTION 13

CARE OF THE CHILD WITH AN ORTHOPAEDIC CONDITION

13.3 PLASTER CARE

13.3.1 APPLICATION OF A PLASTER CAST

**Aims**<sup>1</sup>

1. To secure, immobilise and support an injured limb or operative site.
2. To provide protection for the injured limb or operative site.
3. To reduce pain.

**Key points**

1. In order to prevent rotation and movement of the fracture/operative site, the joint above and below the injury site should be immobilised.
2. Two people are required for this procedure.
3. This procedure is usually done in the Emergency Department, Plaster Clinic or Theatre under the guidance of competent staff.
4. The plaster technician or physiotherapist may be contacted for assistance with application of a cast.
5. The chemical reaction created to harden the plaster cast may cause the patient to feel heat during application.<sup>1</sup>

**Equipment**

Bowl of tepid water (room temperature)<sup>1</sup>  
Plaster of Paris bandages of suitable size  
Padding eg. Webril  
Tube gauze  
Tape  
Plaster scissors  
Gown  
Waterproof sheeting  
Crepe bandages

PROCEDURE	ADDITIONAL INFORMATION
<p>Administer prescribed analgesia prior to the procedure if required.</p> <p><b>Note:</b> Except where wounds or abrasions need dressing, no skin preparation is necessary.</p>	<p>Use pain score to assist with assessment. (<a href="#">Acute Pain Management Clinical Practice Guidelines and Protocols</a>)</p>

PROCEDURE	ADDITIONAL INFORMATION
<p><b>Assistant</b></p> <p>Ensure the limb is supported.</p>	<p>Hold an arm by 2-3 fingers.</p> <p>Hold a leg with one hand under the knee and the other hand holding the toes.</p>
<p><b>Operator</b></p> <p>If the patient is an infant or if using fibreglass, apply a cast liner to the affected limb.</p> <p>Use a longer length than the plaster will be.</p>	<p>The cast liner provides skin protection from the cast.</p>
<p>Apply the tube gauze and then a double layer of padding.</p> <p>Ensure the lining and padding is dry, and that there are no creases or wrinkles.</p>	<p>Pressure injuries may develop at the site of wrinkles.</p> <p>Skin irritation will occur if the liner is damp.</p>
<p>Wet the plaster of Paris thoroughly in tepid water.<sup>1</sup></p> <p>Squeeze excess water from the plaster.</p>	<p>If water temperature is too warm there is a potential to cause thermal injuries.<sup>1</sup></p>
<p>Apply the plaster smoothly and evenly over the padded area.</p>	<p>Pressure areas may develop at the site of wrinkles.</p>
<p>Trim, fold and smooth edges whilst plaster is still wet.</p> <p>Apply crepe bandage.</p>	<p>Smooth edges will promote maintenance of skin integrity.<sup>1</sup> Finishing the plaster around the digits will:</p> <ul style="list-style-type: none"> <li>• allow assessment of circulation;</li> <li>• promote comfort and movement;</li> <li>• aid in the reduction of swelling;</li> <li>• minimise the risk of complications.<sup>1</sup></li> </ul>
<p>Where skin is at risk of irritation or contamination, apply waterproof tape along edges of the plaster.<sup>1</sup></p>	

### Reference:

1. Bryant GG. Modalities for immobilization. [Expert opinion]. In: Mahar AB. Salmond SW & Pellino TA, editor. Orthopaedic nursing. [3rd ed.] Philadelphia: WB Saunders for the NAON; 2002.