

LOSS OF SKIN INTEGRITY IN PAEDIATRIC TRAUMA - CHW

PRACTICE GUIDELINE[®]

DOCUMENT SUMMARY/KEY POINTS

- Guide for clinical staff in skin integrity management following a trauma.
- Definitions of traumatic skin integrity loss:
 - Abrasion
 - Friction Burn
 - Contact Burn
- A thorough assessment of a wound is critical in determining how it should be managed
- Management of traumatic loss of skin integrity
- Discharge advice and follow up recommendations.
- This document should be used in conjunction with CHW and SCHN documents:
 - [Burns and Plastics Treatment Centre - Clinical Guidelines - CHW](#)
 - [Burns Management](#)
 - [Pain Management CHW](#)
 - [Procedural Sedation \(paediatric ward, clinical and imaging areas\)](#)
 - [ED burns management pathway](#)
 - [Burns Patients in the PICU – CHW](#)

Related information:

- [Clinical Images \(Photography, Video/Audio Recordings\) of Paediatric Patients](#)
- [Wound assessment and management](#)

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st November 2023	Review Period: 3 years
Team Leader:	Clinical Nurse Consultant	Area/Dept: Trauma CHW

CHANGE SUMMARY

- N/A – new document

READ ACKNOWLEDGEMENT

- All multidisciplinary clinical staff involved in the management of a patient following a trauma with skin integrity loss should read and acknowledge the document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

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1 Purpose and Scope


The purpose of this guideline is to assist the medical officers and nurses in managing children with loss of skin integrity following a trauma. It is important to ensure that these types of injuries are appropriately assessed and managed to promote the wellbeing of the child.

This document describes the management of the following common loss of skin integrity definitions:

- Abrasions
- Friction Burns
- Contact Burns

It is important to obtain a clear history of the mechanism of injury, how, when and where the injury occurred to determine the likely source of skin loss.

2 Definition: loss of skin integrity

Skin integrity	Description	Image
Abrasion	Can also be described as a scrap or graze. It is a type of open wound that's caused by the skin rubbing against or sliding over a rough surface. Abrasions are generally superficial injuries to the skin and are characterised by a traumatic removal, detachment, or destruction of the epidermis .	

<p>Friction Burn</p>	<p>This is an injury that occurs when the skin is scraped off by contact with hard surfaces (such as roads, bicycle tyres, treadmills, rope). As the friction of skin against a surface generates heat it is usually both a scrape (abrasion) and a heat burn and will result in damage to the dermal layers of the skin. This damage may range from superficial dermal to deep dermal and may cause full thickness skin loss.</p>	
<p>Contact Burn</p>	<p>This is an injury that occurs when the skin encounters a heat source. Contact burns may result in a severe burn injury due to prolonged transfer of heat from an object to the skin, especially if a body part becomes trapped against the heat source (car engine, motorcycle/car exhaust). Damage to the dermal layers of the skin may range from superficial dermal to full thickness skin loss.</p>	

3 Assessment

When assessing the wound there are several characteristics that require consideration.

3.1 In the Emergency Department (ED)

During the secondary survey the Medical Officer should assess the skin integrity of the patient and document in the patients' medical records any abrasions, friction or contact burns.

- In addition, if the skin integrity is a friction burn with damage to the dermal layers or a deep dermal injury a clinician needs to photograph the skin integrity and submit to the burns team . (See section 3.4 for advice on how to do this).
- Use a Bactigras dressing for all skin injuries which will then be reviewed the following day with the appropriate dressing application and follow up.
- If there is gravel or bitumen in the wound, even if it is superficial then it will require a surgical review +/- cleaning +/- theatre debridement.

If the patient is suitable for discharge from the ED, then follow the management and follow up considerations in sections 4 and 5.

3.2 In the Paediatric Intensive Care Unit (PICU) and ward area

During the tertiary survey it is important for the Medical Officer to complete a top to toe assessment of the patient. This includes reviewing the wounds.

- If a photograph HAS been attended in ED (or prior):
 - Review the image
 - Remove the ED Bactigras dressing and assess the wound.
 - Follow up as per management pathway in [Table 2](#).
 - Arrange appropriate discharge plan.
- If a photograph HAS NOT been attended in ED (or prior):
 - Remove the ED Bactigras dressing and assess the wound.
 - The clinician needs to photograph the skin integrity and submit to the burns team (see [section 3.4](#) for advice on how to do this).
 - Follow up as per management pathway in Table 2: Management of skin integrity
 - Arrange appropriate discharge plan.

3.3 Other considerations

- Tetanus status should be checked on admission and tetanus prophylaxis given if indicated.
- Child Protection Unit (CPU) involvement is required for all suspected non-accidental injuries.

- Be sure to utilise the Child Life Therapist to provide ongoing procedural support for the review and dressings of wounds.
- Early nutritional assessment to promote healing with a referral to the nutrition and dietetics team.

3.4 Photographing injury

- Photograph injury in accordance with the SCHN policy - [Clinical Images \(Photography, Video/Audio Recordings\) of Paediatric Patients](#)
- The skin loss should be photographed and recorded in the patients notes for all clinicians involved to review.
- They can securely upload them via Microsoft Teams and MedSync to eMR.
- The images should also be sent to: Kidsburns (kidsburns@chw.edu.au)

4 Management of wounds

Assessment of the wound is a prerequisite to the selection of an appropriate dressing.

The management of the loss of skin integrity will depend on factors including type of injury, depth of injury and mechanism of injury. Please see [table 2](#) below.

- For the applications and more detailed description of dressings please refer to the [Burns Management](#) – SCHN policy.

4.1 Dressing considerations

MRI:

- Dressings that contain silver such as Acticoat or MepilexAG will need to be removed prior to MRI as they are not compatible with the scanner.

Table 2: Management of skin integrity

Type	Analgesia	Other considerations	Cleaning	Dressings*	Referrals	Follow up
Superficial abrasions	Paracetamol	N/A	Antiseptic solution	Bactigras Mepilex	N/A	GP review 2-3 days
Deeper abrasions or friction / contact burns	Paracetamol Oxycodone +/- <i>nitrous oxide</i> +/- <i>midazolam</i>	Child life therapy Pain team	Antiseptic solution	Choice of antimicrobial dressing: • Acticoat up to 7 days OR • Mepilex Ag up to 7 days OR • Bactigras 2 nd daily	Burns CNC Burns Registrar / Plastics registrar	Burns Plastics Treatment Centre (BPTC)
Deep dermal and full thickness injury	Paracetamol Oxycodone +/- <i>nitrous oxide</i> +/- <i>midazolam</i>	Child life therapy Pain team Physiotherapy	Antiseptic solution	Acticoat up to 7 days	Burns CNC Burns Registrar / Plastics registrar	Await surgical plan

5 Discharge checklist

5.1 Documentation

Clear documentation in the discharge summary outlining:

- The wound assessment
- Specific dressing type
- Change of dressing timeline
- Parents / carers need to be instructed to leave the dressing intact and keep it clean and dry.
- Simple analgesia (Paracetamol & Ibuprofen) is recommended for pain relief.

5.2 Follow up considerations

- *Local*
 - GP for superficial abrasions
 - Burns Plastics Treatment Centre (BPTC) for:
 - anything greater than superficial
 - complex analgesia & sedation
- *Regional / Rural / Remote*
 - GP for superficial abrasions
 - Local Paediatric Acute Care service / ED for wound reviews of patients up to day 10 with digital photos sent to Kidsburns for ongoing oversight.
 - Refer to BPTC if complex analgesia & sedation is required.

6 Bibliography

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https://aci.health.nsw.gov.au/_data/assets/pdf_file/0009/250020/ACI-Burn-patient-management-guidelines.pdf
3. [Burns Management](#) – SCHN practice guideline:
4. Everything you should know about Skin Abrasions: <https://www.healthline.com/health/abrasion>
5. Minor burns management - ACI
https://aci.health.nsw.gov.au/_data/assets/pdf_file/0005/162635/ACI-Minor-burns-management-guidelines.pdf
6. What is a friction burn and how do you treat it?:
<https://burncenters.com/burns/burn-services/friction-burn/>

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7 Appendix

7.1 Dressing products

Product	Description	Application indication	How to apply
Acticoat 3 / 7	Silver antimicrobial barrier dressing. Provides sustained release of silver onto wound bed over 3 or 7 days. Must be kept moist	Over debrided areas	Wet in bowl of sterile water for irrigation shortly before use. If soaked for too long, silver will soak out of dressing
Mesorb	Contains an absorbent core of cellulose pulp sandwiched between a nonwoven wound contact layer and textured fluid resistant layer	Over Acticoat to provide moist reservoir	Moisten in bowl of Sterile Water for Irrigation and squeeze out excess moisture. Apply over Acticoat layer. Do not apply sodden
Mepilex Ag	Antimicrobial absorbent polyurethane foam containing silver with silicone based wound contact layer	Acute superficial to mid dermal wounds.	Remove plastic backing sheet and silicone wound contact layer against wound surface. Do not stretch. Aim to overlap donor site area by at least 2cm. Secure in place with Hypafix strips
Mepilex Mepilex Lite	Absorbent polyurethane foam with silicone based wound contact layer Thinner version of Mepilex foam	Superficial abrasions and friction burns	Remove plastic backing sheet and apply silicone wound contact layer against wound surface. Do not stretch. Aim to overlap donor site area by at least 2cm. Secure in place with Hypafix strips

Bactigras	Woven gauze dressing impregnated with antiseptic soft paraffin	Temporary dressing over acute skin integrity trauma wound	Remove waxed paper and use straight from roll or packet. Apply in a double layer.
Crepe	Lightweight woven bandage	To secure dressings	Wrap firmly around underlying dressings & Webril, and secure with staples, Hypafix or Elastoplast.
Webril	Stretchable cotton bandage with absorbent properties	To secure dressings, provides absorbent protective layer under crepe	A) Wrap firmly around underlying dressings B) Soak in sterile water and wrap around underlying Acticoat dressing – only when circumferential wound.
Hypafix	Self-adhesive, nonwoven polyester fabric	To secure primary dressings and provide fixation	Remove backing paper & stretch out & apply sticky side to wound.
Opsite / Tegaderm / Loban	Bio-occlusive dressing/ impregnated with iodine	To seal Acticoat dressings and waterproof external bandages.	Cut to size needed and remove backing paper then apply sticky side to wound

7.2 Acticoat and Acticoat 7 application technique

		
1 Clean the burn wound	2 Moisten Acticoat ^o & Mesorb ^o with sterile water	3 Moisten Acticoat ^o & Mesorb ^o with sterile water
		
4 Apply Acticoat ^o to wound - blue side down	5 Cover Acticoat ^o layer with moistened Mesorb ^o pad	6 Apply a layer of cling film (or Op-Site ^o / Tegaderm TM)
		
7 Seal edges to secure in place. This prevents evaporation of moisture.	8 Wrap with a layer of Webril TM (cotton wool padding)	9 End with a crepe bandage. Tape securely in place

Procedure:

1. Wash the burn wound in chlorhexidine gluconate 0.05% solution and pat dry. Remove any dead tissue and debride blisters to ensure a clean wound bed.
2. Select the appropriate size and type of Acticoat^o or Acticoat^o 7. Acticoat^o or Acticoat^o 7 may contract on the wound site so there should be about a 2 to 5cm overlap around the wound margins. This varies with the size of the child and the site of the wound.
3. Moisten the Acticoat^o or Acticoat^o 7 with sterile water (remove excess water prior to application) as this activates the release of nanocrystalline silver from the dressing.
4. **It is important to only use sterile water for irrigation to moisten Acticoat^o - DO NOT USE SALINE** as this can cause adverse effects with the silver in the Acticoat^o .

5. Place the Acticoat◇ or Acticoat◇ 7 on the wound (blue side down). Make sure all areas of the burn wound are covered with Acticoat◇ or Acticoat◇ 7 and there is suitable overlap. For areas where the Acticoat◇ dressings are at risk of slippage, anchor them in place with strips of Hypafix®.
6. Moisten Mesorb◇ , or similar secondary dressing, with sterile water (remove excess water prior to application). Apply moist Mesorb◇ (white side down) over the Acticoat◇ or Acticoat◇ 7; making sure that the Acticoat◇ or Acticoat◇ 7 is well covered.
7. Cover the Acticoat◇ and Mesorb◇ layers with either cling film or Tegaderm™ / OpSite◇ . This helps to maintain the moisture content of the dressings and prevents evaporative loss. Seal the edges with Hypafix®. Do not apply cling film or Tegaderm™ circumferentially around non-burnt limbs or torsos.
8. Wrap the areas with a layer of Webril™ (cotton wool wadding) and secure in place with an outer crepe bandage.
9. Leave dressings intact until further review. Acticoat ◇ can remain intact for up to 3 days. Acticoat7◇ may be left intact for up to 7 days.

Caution: Do not use on patients with a known sensitivity to silver.

Do not use on patients who require MRI scans.

Care must be taken not to tightly wrap primary or secondary dressings circumferentially around burn wound areas, including fingers, limbs, and the torso.