

# Donor site management for burn patients

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A clinical guide

OCTOBER 2020

The information is not a substitute for healthcare providers' professional judgement.

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## Summary

This document was designed to accompany the *Burn Patient Management* guide and the *Skin Graft Management for Burn Patients*. It provides specific donor site management advice and direction. All of these documents were designed to complement relevant clinical knowledge and the care and management techniques required for effective patient management. Clinicians working outside a specialist burn unit are encouraged to liaise closely with their colleagues within the specialist units for advice and support in burn patient management, including follow-up care post-discharge.

This document will be reviewed every five years, or more frequently if indicated, and updated as required with current information at that time.

# Definitions

## Donor site

A donor site is the area where tissue is harvested to provide cover to replace a defect somewhere else on the body. This can be used for coverage of areas of burn or other loss such as trauma, skin tear or lesion removal. Donor sites can be split thickness or full thickness. The area that the skin has been taken from, the donor site, becomes a new area of skin loss in addition to any other skin loss areas.<sup>1</sup> This donor site introduces a new wound, which can also include issues such as pain, bleeding, infection, difficulty healing and scar production.<sup>2-4</sup>

## Split thickness donor

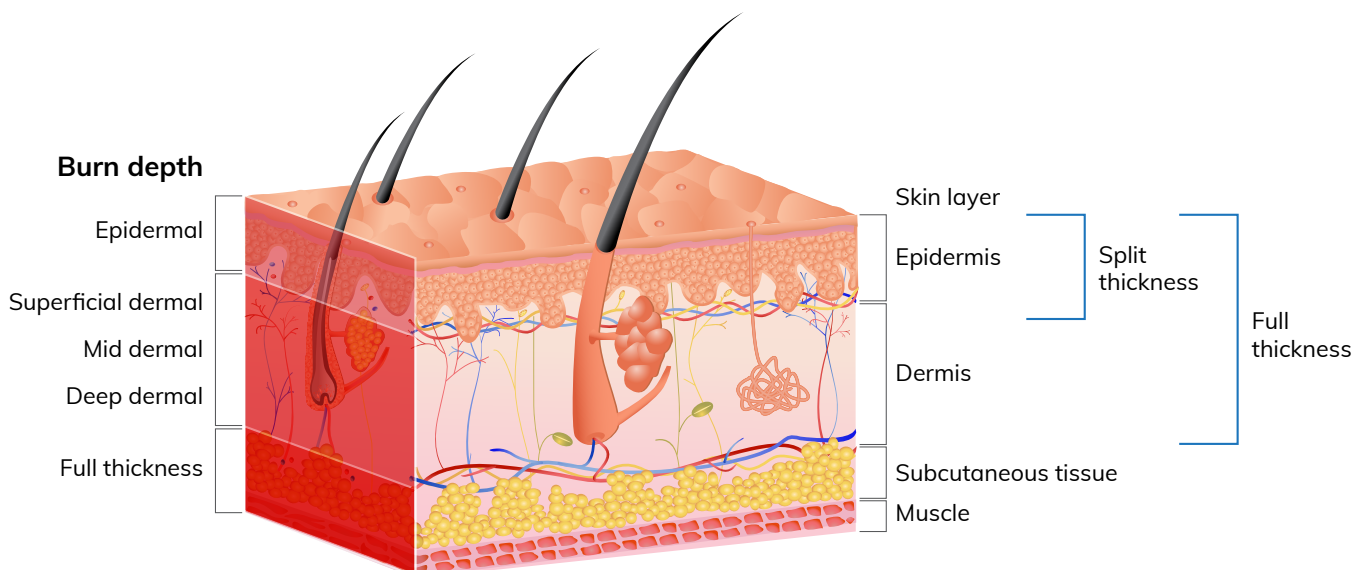
Split thickness is where epidermal and papillary dermal tissue is harvested. This is the most commonly used method for burns due to the ability of the donor site to heal quickly with minimal scarring.<sup>5</sup>

## Full thickness donor

Full thickness is where epidermal and the full dermal tissue is harvested. This is used less often than the split thickness donor as it requires a secondary split thickness graft or primary closure of the donor site to heal. Generally, only small areas of full thickness skin are used.

## Donor site depths

Figure 1: Cross section of skin showing donor depths

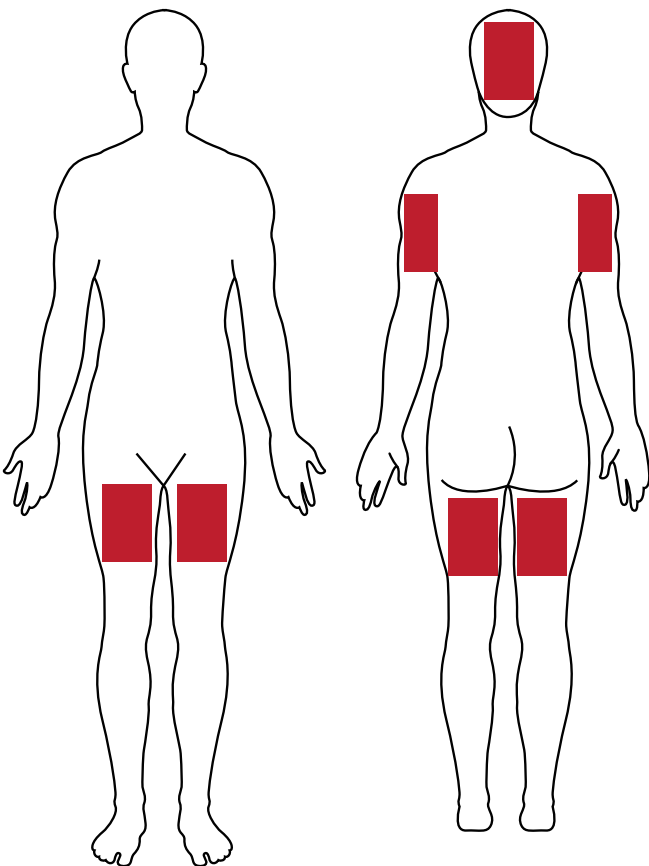


### Common donor sites

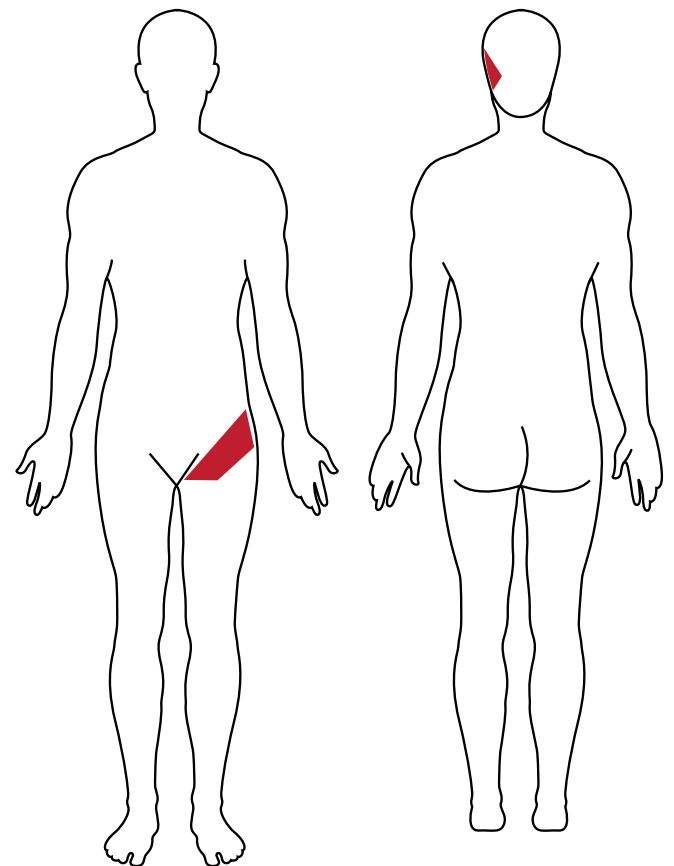
Common split thickness donor site areas include the thighs, upper arm, buttocks and scalp (Figure 2), as these areas are not readily visible and can provide large strips of donor skin.<sup>6,7</sup> For full thickness donor grafts, skin areas such as from behind the ear or the groin are used (Figure 3). However donor sites can be

taken from an area of the body closest in colour match for the graft site.<sup>6,7</sup> If available donor skin is limited, almost any area on the body can be used as a donor site.

**Figure 2:**  
Common split thickness sites for skin harvesting



**Figure 3:**  
Common full thickness sites for skin harvesting



# Donor site dressings

Selecting the most appropriate dressing for a wound can be challenging and donor sites are no exception. There are many different opinions of which is the most appropriate dressing for these wounds.<sup>4</sup> Some include film, alginate, hydrocolloid and impregnated gauze. When signs of infection are present, a silver dressing is often useful for antimicrobial coverage.

Donor site dressings aim to enhance rapid healing, maintain a moist wound environment and prevent adherence to the wound bed.<sup>6,7</sup> Other qualities considered to be important include absorbency and ease of removal.<sup>8</sup>

Protection of the wound bed and supporting re-epithelialisation is the most important consideration in choosing an appropriate wound dressing. Dressings that can be left intact for 7–10 days are optimal. Antimicrobials should not be necessary if the wound is appropriately dressed as they are created in a sterile environment. However, any infection must be cleansed and dressed appropriately.

# Harvesting the donor skin in operating theatres

## Aim

- To harvest appropriate skin to cover a deficit.
- To maintain an aseptic technique at all times.

## Procedure

The required skin is removed either with a blade or an electronic surgical cutting tool called a dermatome.<sup>6,7</sup> The dermatome has multiple depth settings and can take a very thin shaving of skin.



**Figure 4: Area prepared for donor site**

The selected area is prepared using an appropriate solution (e.g. povidone-iodine) and sterile drapes.



**Figure 5: Taking donor skin with dermatome**

The skin is stretched to allow even pressure on all areas of skin harvested, thus providing an even piece of donor skin.



**Figure 6: Freshly harvested donor site**

Once the skin is harvested, the donor site is left as a bleeding wound bed.



# Dressing procedure

## Aim

- To allow the donor tissue to heal through the body's own process of re-epithelialisation.
- To apply the most appropriate dressing using correct technique.
- To apply a dressing in a timely manner to avoid hypothermia, excess pain or trauma.
- To maintain an aseptic technique at all times.

## Procedure

- After the donor skin has been taken, the bleeding wound is covered with adrenaline soaks to promote coagulation.<sup>9</sup>
- When haemostasis has been achieved and the bleeding has stopped, an appropriate dressing such as an occlusive film dressing or a calcium alginate is applied to the donor site. Film dressings allow moist wound healing and the occlusive nature allows the wound to be undisturbed during healing.<sup>10</sup> Calcium alginate dressing products can promote coagulation of blood from the donor site. They can also promote moist wound healing and reduce pain.<sup>6</sup> Alternatively, donor sites can be dressed with silicone dressings which are often easier to remove. Hydrofibres and hydrocolloids can provide a moist wound healing environment. Single layer impregnated gauze or dry gauze are not recommended as removal often leads to wound bed trauma.
- Apply the primary dressing directly to the donor site wound. The primary dressing should have a 2–5cm overlap and border. It is important to cover the whole area, on and slightly around the wound site to allow for movement.
- A suitable absorbent secondary dressing should then be applied.
- Secondary dressings must not come in contact with the donor site as they may adhere and cause trauma on removal.
- A fixation dressing, such as an adhesive tape, is then used to secure the dressing in place and prevent slippage. Crepe bandages may be used but must be well secured to avoid slippage, particularly of the primary dressing.

### Important

Care must be taken not to tightly wrap primary dressings circumferentially around the wound.

# Initial inspection

## Aim

- Observe donor site progress at 24–48 hours post-surgery.
- Provide effective donor site management and problem solving.

## Managing complications

- If any of the previously mentioned complications are noted, the dressing should be removed and the area cleaned thoroughly with an appropriate solution such as 0.9% sodium chloride. Swab wound for culture if clinically indicating infection.
- If odour and offensive exudate is present, apply appropriate antimicrobial dressing (e.g. silver dressing). Ensure an overlap and border of 2–5cm.
- Apply a secondary retentive dressing. Leave intact for two to four days.
- If indication of scratching is present, the patient should be encouraged to use antihistamines and other non-pharmacological methods such as ice packs or a massager.
- If the wound is clean and bleeding has been controlled, re-dress with appropriate dressing, such as a silicone dressing and retentive secondary dressing (e.g. absorbent pad and tape). Leave the dressing intact for seven days.

## Procedure

- Evaluate pain and provide analgesia if required.
- Assess the donor site wound dressing. If exudate moderate to large, remove outer dressing.
- If the primary dressing is dry and clean, leave intact.
- Ensure dressing is kept clean and dry (i.e. cover with a plastic bag during showering).
- Look for complications such as:
  - blood or exudate visible on secondary or external dressing (Figure 7)
  - dressing slippage (Figure 8)
  - malodour
  - signs of scratching due to itch
  - excessive pain, moisture or swelling.

**Figure 7: Blood soaked dressing**



**Figure 8: Dressing slippage**



# Dressing removal

## Aim

- Observe donor site wound progress.
- Provide appropriate management for level of healing.

## Taking donor site dressing down at day 8 to 10 post-harvesting

- Assess pain and provide analgesia as appropriate, giving time for it to take effect.
- Donor sites should be fully taken down and assessed within the 8–10 day timeframe, unless otherwise advised by an appropriate specialist clinician.

## Donor healed

Skin has re-epithelialised with no moist areas, (Figure 9).

- Leave exposed, if appropriate to do so, to allow moisturiser application.
- Apply water-based moisturiser four to five times a day (e.g. sorbolene, vitamin E or oatmeal-based moisturiser).
- Educate the patient on donor site care, including the need to continue moisturising and ensure shear and friction is prevented.
- Ensure the patient is aware of appropriate sun care.

**Figure 9: Healed donor site**



## Donor not healed

Skin has not re-epithelialised, with raw and moist areas present (Figure 10).

- Assess and document the appearance of the wound bed.
- If the donor site is raw but there are no signs of wound infection, apply an appropriate dressing (e.g. silicone) and leave intact for three to five days.
- If the wound has obvious signs of infection and healing has not progressed over the last 10 days, take a wound swab for culture. Discuss with an appropriate specialist clinician to determine the best dressing options and document the course of action in the integrated notes.
- Continue to reassess as required and leave the dressing intact for the prescribed period of time.
- An appropriate specialist clinician must be notified if the donor site remains unhealed after a further seven days. They will direct an appropriate course of action.

**Figure 10: Donor site with fresh bleeding**



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## Acknowledgements

These documents were developed by the members of the multidisciplinary team of the ACI Statewide Burn Injury Service (from Royal North Shore Hospital, Concord Repatriation General Hospital and The Children's Hospital at Westmead).

## Methodology

This document was originally developed in 2006 by members of the ACI Statewide Burn Injury Service (then GMCT), in consultation with clinicians from the three NSW burn units. It was created using evidence and clinical opinion from specialist burn clinicians. The document has been updated several times since creation in consultation with burn clinicians, and at each review the authors identified and reviewed relevant published research. Searches using Medline, Burns journal and ClinicalKey were conducted using search terms including (burn[title/abstract] AND/OR skin graft[title/abstract] OR donor site[title/abstract] OR dressing[title/abstract]). The most recent search was conducted in May 2020.

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