

## Study of Negative Pressure Wound Therapy as an adjunctive treatment for acute burns in children (SONATA in C): a randomised-controlled trial protocol

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### Background

- Negative Pressure Wound Therapy (NPWT) is a technique in wound management involving the use of a suction device to establish a low, evenly-distributed vacuum across a wound site
- Since its development over 20 years ago, it has become widely used as a skin graft bolster and in the treatment of diabetic ulcers, pressure ulcers, sternal wounds, & open abdomens
- The efficacy of NPWT in the context of acute burns, however, has not yet been adequately investigated, with research in children particularly lacking



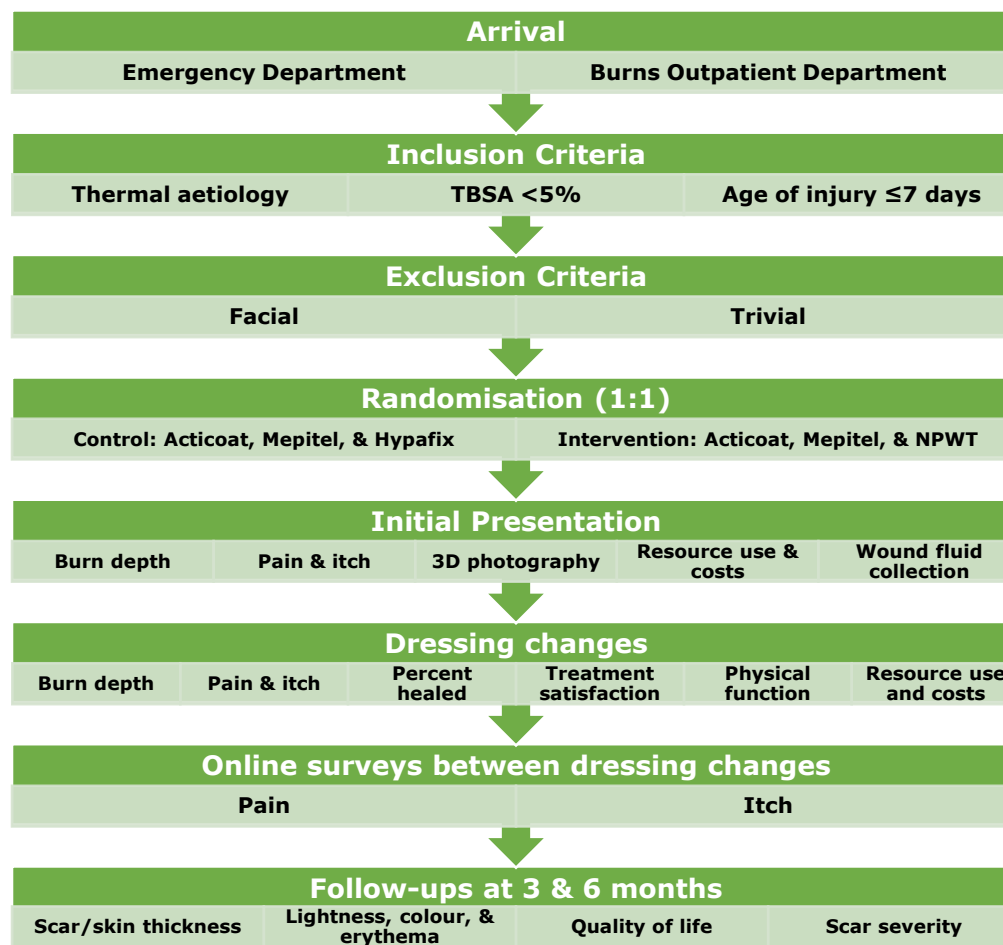
**Figure 1:** NPWT dressings on a child who sustained a burn to his left forearm.

### Aim

- To determine whether NPWT in combination with standard therapy accelerates healing, decreases pain, & reduces burn wound progression more effectively than routine treatment alone

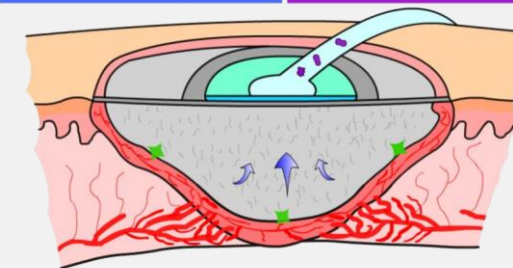
### Study design

- Prospective randomised-controlled trial (RCT) with two parallel treatment arms
- Primary outcome: Time to re-epithelialisation
- Secondary outcomes: Pain, itch, burn wound progression, resource use & costs, & scar/skin quality
- Intended sample size: 104 children



### Possible mechanisms of action

- Reduces oedema, increasing perfusion
- Removes inflammatory mediators



- Stimulates cellular activity, including angiogenesis
- Provides ideal environment for re-epithelialisation

### Significance

- Across Queensland, over 1,100 children sustain serious burns requiring referral to a burns centre every year
- Up to 65% of patients with burns develop scarring
- NPWT is hypothesised to reduce the likelihood of scarring by accelerating re-epithelialisation
- This study will be the first RCT to explore the effects of NPWT on healing in paediatric burns, with the goal of determining whether the therapy warrants implementation as an adjunct to standard burns management

### Acknowledgements

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