

Cost-effectiveness of silver dressings for paediatric partial thickness burns: An economic evaluation from a randomized controlled trial

Gee Kee E., Stockton K., Kimble R.M., Cuttle L., McPhail S.M. Burns 2017;43(4):724-732

Aim

The aim of the study was to conduct a cost-effectiveness analysis of three silver dressings for partial thickness burns in children using days to full wound re-epithelialisation as the health outcome.

Method

Trial-based economic evaluation conducted from a healthcare provider perspective with a time horizon of one year. Children (0-15 years) with $\leq 10\%$ total body surface area (TBSA) partial thickness burns who met the inclusion criteria were randomised to one of three intervention groups:

1. Acticoat[◊]
2. Acticoat[◊] with Mepitel[®]
3. Mepilex[®] Ag

Results

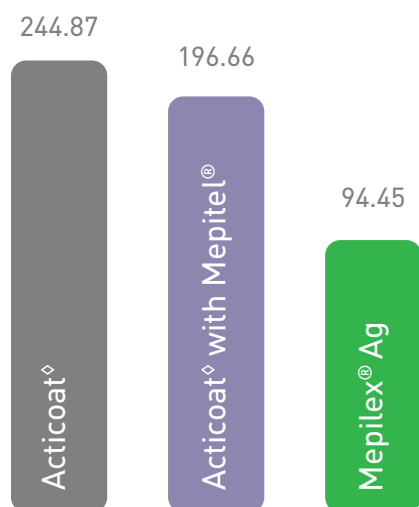
Clinical outcomes

Mepilex[®] Ag was associated with mean fewer days to re-epithelialisation per patient:

- 2.1 days fewer compared to Acticoat[◊]
- 1.3 days fewer compared to Acticoat[◊] with Mepitel[®]

Cost effectiveness

Median total costs in AUD\$ per patient (excluding skin grafting)



Costs (dressing, labour, analgesics, scar management) were considerably **lower in the Mepilex[®] Ag group** compared to the Acticoat[◊] and Acticoat[◊] with Mepitel[®] interventions.

There was a 99% and 97% probability that Mepilex[®] Ag dominated (more effective and less expensive) Acticoat[◊] and Acticoat[◊] with Mepitel[®], respectively.

Mepilex[®] Ag was the dominant dressing choice over both Acticoat[◊] and Acticoat[◊] with Mepitel[®] and is recommended for treatment of paediatric partial thickness burns $\leq 10\%$ TBSA.

Additional useful information

Resources and costs

Resource and cost data (AUD\$, 2014) related to the management of partial thickness burns $\leq 10\%$ TBSA were collected, for one year after re-epithelialisation:

- Number of dressing changes
- Time taken per dressing change
- Nursing staff time (in minute) for each dressing change (remove the dressing, clean the wound, apply the new dressing)
- Dressing type, size, quantity
- Analgesia
- Labour time for dressing, wound or scar-related management for occupational therapists and treating medical or surgical consultants
- Scar management and skin grafting

The cost-effectiveness of dressings was measured using the Incremental Cost-Effectiveness Ratios method (ICER)

$$ICER = \frac{(Cost\ Product\ 1\ group) - (Cost\ Product\ 2\ group)}{(Effect\ Product\ 1\ group) - (Effect\ Product\ 2\ group)}$$

Additional results

- 103 children were randomised into the study and, as per the intention to treat protocol, 96 were included for analysis.
 - Acticoat[®] (n=31)
 - Acticoat[®] with Mepitel[®] (n=32)
 - Mepilex[®] Ag (n=33)
- There was no statistically significant difference between the dressing groups with respect to baseline variables (age, gender, burn depth, wound perfusion units, TBSA, mechanism and location of burn) and wound age.

Costs accumulated for each treatment groups

Grouping	Acticoat [®]	Acticoat [®] with Mepitel [®]	Mepilex [®] Ag
Group median (IQR) in AUD\$			
Total acute costs (excluding skin grafting)*	244.87 (109.22 – 386.80)	196.66 (134.54 – 393.87)	94.45 (55.21 – 137.62)
Dressing costs	69.71 (38.30 – 183.28)	98.68 (56.70 – 198.33)	25.20 (16.80 – 50.45)
Staff labour costs	112.41 (67.85 – 175.30)	104.99 (72.30 – 145.53)	67.68 (38.65 – 74.33)
Analgesia costs	0.40 (0.21 – 0.63)	0.40 (0.26 – 0.73)	0.32 (0.20 – 0.47)
Scar management costs*	0 (0.00)	0 (0.00)	0 (0.00)
Group mean (SD) in AUD\$			
Total acute costs (excluding skin grafting)*	373.30 (428.94)	341.37 (414.16)	116.80 (84.03)
Dressing costs	125.97 (133.17)	164.46 (156.55)	39.05 (34.10)
Staff labour costs	134.06 (92.17)	114.36 (60.36)	76.34 (54.51)
Analgesia costs	0.59 (0.71)	0.54 (0.44)	0.36 (0.27)
Scar management costs*	103.46 (282.43)	41.35 (165.35)	2.94 (16.91)
Cost estimate per surgical skin grafting case	17,131	17,131	Nil cases
Group mean (SD) (including skin grafts)	1478.52 (4499.86)	1412.03 (4596.03)	116.80 (84.03)

*Total acute costs (excluding skin grafting) = dressings, staff labour, analgesia medication, scar management therapy.
Surgical skin grafting costs = surgical cost of a skin graft and cost of negative pressure wound therapy for 1 week.
Scar management costs = all scar resources (consumables costs and staff labour).