The Cost of Hospital Treatment for an Extensive Burn

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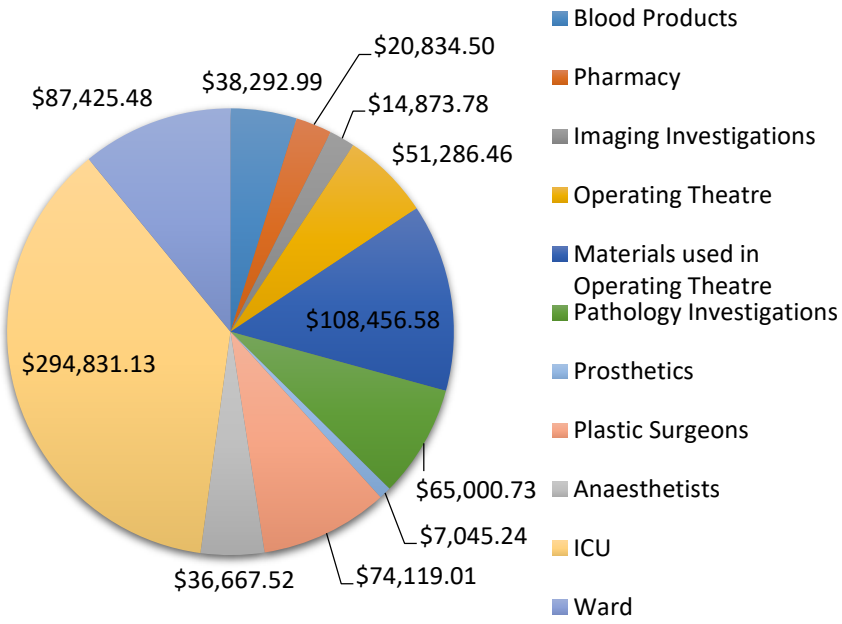
Introduction

The treatment of an extensive burn injury in the acute and sub-acute settings can be costly.[1] Severe burns often necessitate protracted hospital stays, heavy utilisation of resources and mobilisation of multidisciplinary teams. While it is agreed that burns care is costly, there is very little existing literature that accurately quantifies this financial burden. This poster outlines the experience of a dedicated Sydney burns center in managing a patient with extensive (>80% total body surface area) chemico-thermal burn wounds, with a focus on the cost of the acute hospital care compared with funding.

Figure 1. Healthcare cost by category



Case

A 26-year-old male presented to Royal North Shore Hospital via air retrieval, having suffered extensive burns from a chemical explosion. He had full thickness burns to 83% of the total body surface area (TBSA), sparing parts of the face/scalp (7%), abdomen (5%) and genital/groin regions (5%). He was intubated on arrival due to peri-oral burns and increasing analgaesia requirement, and transferred to the operating theatre (OT) for urgent escharotomies (to the chest and all four limbs) and application of dressings. This was the first of many OT visits; grafting was initiated on day 6 of admission, with many progressive re-grafts required. The patient underwent 37 procedures under general anaesthetic during the 170-day admission. A total of 58 days were spent in the intensive care unit (ICU), and 112 days in the severe burns ward, before discharge to a rehabilitation unit.

Figure 2. Torso, legs and back on day 13

Figure 3. Torso, legs and back at 3 weeks follow-up

Table 1. Cost vs Funding

Costs	
Intensive care unit	$294,831.13
Materials used in Operating Theatre	$108,456.58
Ward	$87,425.48
Plastic Surgeons	$74,119.01
Pathology Investigations	$65,000.73
Operating Theatre	$51,286.46
Blood Products	$38,292.99
Anaesthetists	$36,667.52
Pharmacy	$20,834.50
Imaging Investigations	$14,873.78
Prosthetics	$7,045.24
Total	**$798,833.42**
Funding	
National weighted activity units	87.8453
Total	**$412,873**

Table 2. Major OT material costs

Product	Size	Unit cost	Total cost
Acticoat™ antimicrobial silver barrier dressing	5x5cm	10.34	$47,376.09
	10x20cm	25.75	
	20x40cm	88.5	
	40x40cm	172.5	
Biobrane™	13x13cm	69.82	$28,085.88
	25x38cm	457.55	
	38x50cm	915.4	
Decellularised cadaver skin (2014)		779	$6,232
Versajet™ Handpiece		495	$4,950

Discussion

The cost of acute hospital care for this patient with 83% TBSA burns was almost $800,000. Our analysis reveals that the major contributors were the ICU admission (including overheads) and materials used in OT. The 58-day ICU admission accounted for 37% of the entire cost of acute hospital care, while OT materials accounted for 14%. Specialised dressings contributed heavily to materials cost, with a net cost of $47,376 for Acticoat™ and $28,086 for Biobrane™ (see table 2 for unit costs). All cost categories are outlined in descending order in Table 1, and represented diagrammatically in Figure 1. The activity-based funding for this admission was calculated to be $412,873. This accounts for less than 52% of actual cost, with a disparity of $385,960.42.

Conclusion

It is costly to treat an extensive burn, and we conclude that these costs may not be sufficiently covered by our current model of activity-based hospital funding. This study is, to our knowledge, one of the first reported cost vs funding analyses in Australian burn care.

References

1. Ahn CS & Maitz PKM. 2012. The true cost of burn' *Burns*, 38(7): 967–974.