

RURAL AND METROPOLITAN PAEDIATRIC BURNS IN NSW: A RETROSPECTIVE EPIDEMIOLOGICAL ANALYSIS

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Introduction:

The pattern of burn injuries sustained by rural children is thought to differ from metropolitan children due to their exposure to heavy machinery, farm chemicals, the use of motorcycles on properties for livestock mustering, and the deliberate use of fire for back-burning of stubble or waste.¹ Recreational activities differ and also significantly contribute to these differences in injuries.¹ Burns associated with activities such as the use of child-sized motorcycles², barbeques and campfires are commonly seen.

Method:

After obtaining ethics approval, a retrospective epidemiological analysis of children who were burnt in NSW and presented to the Burns Unit at the Children's Hospital at Westmead between the 1st January 2008 and 31st December 2012 was undertaken. 4326 children were identified.

Using the Australian Government Department of Health and Ageing classification tool³ used to define metropolitan and rural areas of Australia, children were classified into having sustained burn injuries in either metropolitan or rural areas of NSW.

Results:

Significant differences were found between these two populations (Table 1).

	Rural	Metropolitan	P-value
Number of children	917 (21%)	3409 (79%)	
Indigenous Australian children	26%	12%	p<0.0001
Anglo-Saxon/Celtic children	58%	32% (i.e. reflects ethnically diverse population)	p<0.0001
Age	4.5 years	3.9 years	p=0.0001

Table 1



Fig 1. Map of NSW showing metropolitan areas in red and the remainder areas, rural.⁴

	Rural	Metropolitan
Contact	41%	Scald 59%
Scald	38%	Contact 27%
Flame	13%	Friction 6%
Friction	6%	Flame 5%

Table 2: Type of injury. Contact burns are the most common mechanism of injury in rural areas.



The kitchen was the most common site of injury in all regions, with 32.5% of children sustaining injuries in kitchens from rural areas and 46% of children from metropolitan areas. Injuries sustained in rural regions more frequently occurred in garages/sheds, farms, bush/forests, and places of sport and recreation (p<0.05).



	Rural	Metropolitan	P-value
Alcohol	0.4%	0%	p<0.0001
Risk taking	15%	9%	p<0.0001
Lack of supervision	94%	95%	p=0.16

Table 3: Contributing factors to injury

66% of children in both groups received adequate first aid.

	Rural	Metropolitan	P-value
</=5% TBSA	88%	93%	p<0.0001
>5% TBSA	12%	7%	p<0.0001
>10% TBSA (major paediatric burn)	3.4%	2.1%	p<0.03

Table 4: Total body surface area burnt

	Rural	Metropolitan	P-value
Wound infections	8.6%	4.4%	p=0.0001
Admission to Burns Unit >24 hours	32%	16%	p=0.0001
Length of stay	6.2 days	4.6 days	p<0.0001
Skin grafting	28%	16%	p=0.0001

Table 5: Complications and management

Conclusion:

Significant differences exist between rural and metropolitan children. We have shown that contact burns and flame injuries occur more frequently in rural children and hence education campaigns should take into account these differences.



References:

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