A comparison of the epidemiology of paediatric burns in Scotland and South Africa

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Background and Aims
In South Africa burns affect 3.2% of the population annually and are particularly common in children and young adults with significant physical and psychological consequences.¹ In Scotland paediatric burns are generally much less common and less severe. The centre with highest incidence of burn injury in South Africa is Cape Town which has consequently become a centre of excellence for paediatric burns care.¹

This study aimed to explore the epidemiological differences in the emergency presentation of paediatric burns in two centres: the Royal Aberdeen Children’s Hospital (RACH) in Scotland and the Red Cross War Memorial Children’s Hospital (RXH) in Cape Town.

Methods
Data was retrieved retrospectively for all paediatric burns presenting in 2009 from RACH patient records and the RXH trauma database. Demographics were analysed and statistical analysis performed using Microsoft Excel.

Results
During 2009 RACH received 192 children with burns (1.3% total emergencies) while RXH received 994 (10.6% total emergencies). Toddlers were the most commonly injured age group in both centres and the mean patient age was 4 years 2 months at RACH (Range 1m – 13y 11m) and 3 years 4 months at RXH (Range 0m – 13y 2m) (Fig.1). In RXH 58.5% patients were male, but this was not statistically significant (p=0.09). At RACH 51% of patients were male. At RXH most children came from informal settlements and were of low socioeconomic status, while RACH patients were evenly distributed among all socioeconomic groups.

Burn injuries were significantly more likely to present in the evening at both centres (p<0.05), and during Cape Town’s winter (p<0.05), but no significant monthly variation occurred in Aberdeen.

At RACH most burns were single site (79%) and involved the hands while at RXH most were multiple site (75.65) and involved the head or neck (Fig.2). Injuries mainly occurred in the domestic environment at both centres. At RACH the commonest modes of injury were scalds (48.4%) and contact burn (43.2%), while at RXH scalds accounted for the majority (76.6%) (Fig.3).

A more detailed look at the aetiology of contact burns in Aberdeen found the commonest heat sources to be cookers (43.9%), hair-straighteners (18.3%), irons (15.9%) and heaters (6.1%). Scalds were mainly due to toddlers pulling a cup of hot liquid from a height. Detailed aetiological information was not available for RXH. At RACH 88.5% children were discharged immediately, whereas 49.1% of RXH patients required burns unit admission.

Discussion
Paediatric burns are a much greater burden to the emergency services at RXH compared to RACH. Furthermore the true incidence of burns in Cape Town is likely to be greatly underestimated as there appears to be a higher threshold of injury before parents seek medical help. The vast majority of burns injuries were due to accidents in the domestic setting and were potentially avoidable with greater awareness of home safety and minimising hazards.

Preventative measures have proven effective for reducing unintentional child trauma in high-income countries with the incidence of paediatric injury related deaths halving between 1970 and 1995.² However, such strategies have not been employed in many developing countries where resources for child health are shared with programmes for child nutrition and vaccinations.³

The RXH already has a volunteer programme that provides waiting room education on home safety (Fig.4). Such projects need support to target families living in informal settlements which are fraught with hazards including candle lighting, paraffin stoves and unsafe electricity means. Legislation may also help increase the uptake of preventative measures such as smoke alarms.⁴

Conclusions
Paediatric burns are more common and generally more severe in Cape Town than in Aberdeen. To reduce the high incidence of burns in Cape Town preventative strategies should be targeted at creating safe home environments through family education, legislation and engineering safer cooking and lighting means.

References

Figure 1. Percentage distribution of paediatric burns by patient age

Figure 2. Percentage distribution of burns presentations by site

Figure 3. Percentage distribution of burns presentations by type

Figure 4. Volunteer led waiting room education on safe candle use