Barriers to adequate first-aid for paediatric burns at the scene of the injury

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Background

- Only a small minority of paediatric burns patients in Australia receive adequate first-aid therapy, defined as 20 minutes of cool running water (CRW) delivered either continuously or cumulatively within 3 hours of the injury.
- First-aid given at the scene of the injury is of particular significance as CRW appears to yield the greatest therapeutic benefits if provided immediately following the burn.

Aims

- Determine the socioeconomic, demographic, and injury-related factors associated with inadequate delivery of first-aid at the scene of the injury.
- Identify the specific populations that would be best served by targeted public health campaigns in the future.

Methodology

- Cross-sectional analysis using data collected from interviews with the guardians of patients presenting to the Lady Cilento Children's Hospital burns unit from 2013 to 2016.
- Patients were classified as receiving either "adequate" or "inadequate" first-aid, and then descriptive analyses were conducted to examine differences between the groups.

Results

- Interviews were conducted with the guardians of 2,522 patients.
- Provision of adequate CRW did not significantly differ with sex (p=0.808), ethnicity (p=0.292), or nationality (p=0.358).
- Factors associated with inadequate first-aid included very young age and early adolescence (p<0.001), rural or remote location (p=0.045), low socioeconomic status (p=0.030), radiant heat and flame burns (p<0.001), and burns occurring at recreational sites, on farm/trade/industrial properties, and in the street (p=0.001).

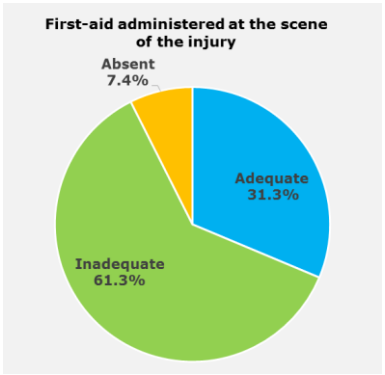

Figure 1. Adequacy of first-aid delivered at the scene of the injury.

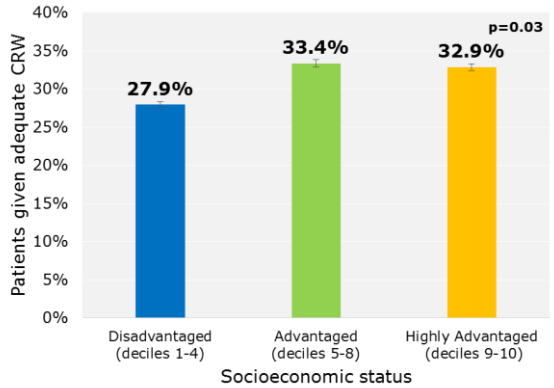

Figure 2. Provision of adequate first-aid in children from different socioeconomic backgrounds. Deciles based on data from the Index of Relative Socioeconomic Advantage and Disadvantage.

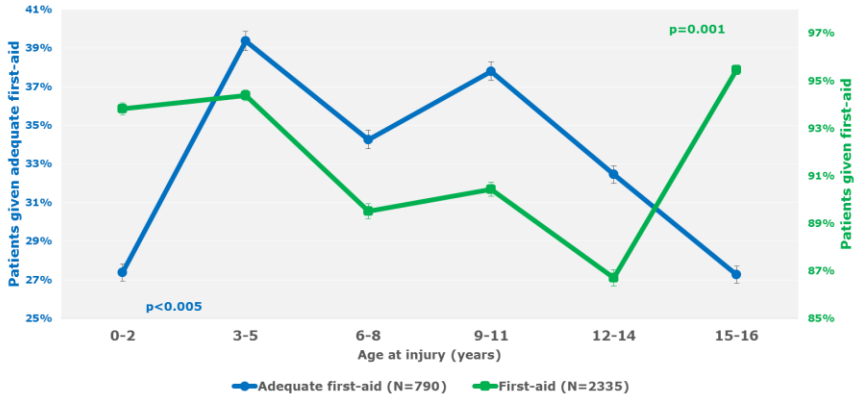

Figure 3. Provision and adequacy of first-aid by age.

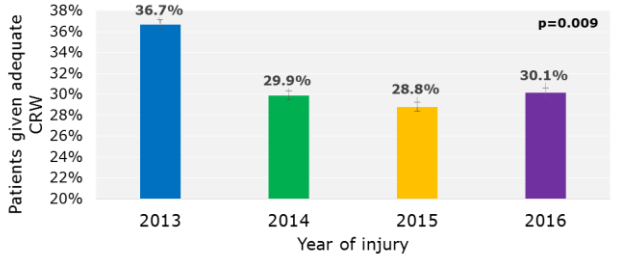

Figure 4. Proportion of patients given adequate CRW by year.

Conclusion

- Across all ages, demographics, locations, and injury mechanisms, first-aid was rarely administered in adequate fashion at the scene of the injury.
- The data was consistent with the current literature in identifying very young age and low socioeconomic status as significant risk factors for undertreatment.
- Patients in the 0-2 and 15-16 age groups were the least likely to receive adequate CRW, but among the most likely to be given some form of first-aid.
- Contrary to previous research, children from Indigenous and non-English-speaking backgrounds were at no greater risk of inadequate first-aid than the rest of the population.
- A general downward trend in annual measures of adequate CRW demonstrates the need for renewed efforts to improve public knowledge of first-aid.

Recommendations

- Future public health campaigns should target caregivers of very young children aged 0-2, adolescents aged 15-16, those living rurally or remotely, and the socioeconomically disadvantaged.