

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

journal homepage: [www.elsevier.com/locate/burns](http://www.elsevier.com/locate/burns)

# A review of community management of paediatric burns

S.G. Cox<sup>a</sup>, R. Martinez<sup>a</sup>, A. Glick<sup>b</sup>, A. Numanoglu<sup>a</sup>, H. Rode<sup>a,\*</sup>

<sup>a</sup> Department of Paediatric Surgery Red Cross War Memorial Children's Hospital and University of Cape Town, South Africa

<sup>b</sup> University of North Carolina, United States

## ARTICLE INFO

### Article history:

Accepted 31 May 2015

### Keywords:

Pre-hospital care  
Thermal injuries  
Children

## ABSTRACT

This study was a component of a broader review to evaluate burn care in South Africa. A prospective audit of 353 children with thermal injuries admitted to the Red Cross War Memorial Children's Hospital in Cape Town was performed during 2012/2013. The audit was based to assess the adherence of initial burn management to the provincial policy guidelines on the clinical management of the burn wound. The community management of each patient prior to admission to a burns centre was assessed for the following: basic demographics, emergency home management, wound cover, analgesia and transport to medical facilities.

Their ages ranged from 1 month to 14 years. The average total body surface area [TBSA] was 15% [1–86%]. Most of the injuries were due to hot water accidents [78.5%] followed by flame burns (9%), direct contact and electricity burns.

Two hundred and twenty five children [63%] received first aid measures at home, including cooling with water [166] ice [30] and a cooling agent. No cooling was instituted in 130 and 65% of the patient's wounds were cooled for 10 min or less. Eighty percent proceeded to the referral centre or burns unit without their wounds being covered; with only 19 patients having any medical type of dressing available at home. Two hundred and ninety five children [83.6%] received pain medication prior to admission at the burns unit. Of the 316 patients not directly attending the burns unit, 137 received IV fluids of which 95 had burns greater than 10% TBSA. None of the patients were in shock on admission and all IV lines were functioning. Forty-four children with burns greater than 10% did not receive IV fluids.

The audit identified six factors that were inadequately addressed during the pre-admission period: first aid, cooling of the wound, early covering of the wound, resuscitation, pain management and transfer. If these could be readdressed, basic burn care would be substantially improved in the study area.

© 2015 Elsevier Ltd and ISBI. All rights reserved.

## 1. Introduction

Domestic incidents are mostly responsible for thermal injuries to children and often leave in their wake permanent scarring, disfigurement and disability. The average annual rate of

burns amongst children in the Western Cape, South Africa is 6.0/10,000 child-years [c-y] and is particularly high for toddlers aged 2–3 years [15.8/10,000 c-y] and for infants [14.6/10,000 child c-y] [1]. Despite international consensus on effective early measures to improve burn care and outcome, several publications report suboptimal early management of

\* Corresponding author. Tel.: +27 216585012; fax: +27 216856632.

E-mail address: [Heinz.rode@uct.ac.za](mailto:Heinz.rode@uct.ac.za) (H. Rode).

<http://dx.doi.org/10.1016/j.burns.2015.05.024>

0305-4179/© 2015 Elsevier Ltd and ISBI. All rights reserved.

especially young children with burns [2–5]. This is because of their age, size, vascular access difficulties, and confusion over fluid resuscitation calculation, altered thermoregulation and analgesia and transport considerations.

The Western Cape Government has established a network of services and facilities to treat burns with a graded approach from minor to major burns. These services were established to de-escalate management of burns to the appropriate levels from the over-burdened tertiary care institutions but needed a comprehensive review in line with strengthening primary and secondary health services in the region. Guidelines on initial treatment, primary and secondary surveys, resuscitation, wound care, analgesia and transport were previously established. The Western Cape Government requested an evaluation of the roll out and implementation of these guidelines for the management of burn wounds [6,7]. A component of this review looked at the pre hospital management of paediatric burns. Analysing preliminary results, it became apparent that parents and caregivers and even local clinics had little understanding of the required emergency management of burns in children, including immediate management, cooling of the wound, early covering of the wound, pain management and transfer and time scale practices. If implemented correctly, the guidelines could make a substantive difference in the pre-hospital management and eventual outcome of children with burns.

The aim of the audit was to prospectively assess the community management of paediatric burns prior to admission to a burns centre against the current provincial policy guidelines in order to identify areas for improvement including potential harmful practices in the metropolitan area. The information gathered will be used to optimise pre hospital burn care amongst children.

## 2. Methods

A prospective study of the pre-hospital management of children, less than 13 years, admitted to the Red Cross War Memorial Children's Hospital Burns Unit between August and October 2012 and June and August 2013 was conducted. Children beyond our catchment area were excluded from the survey. Information was solicited, from the parent or caregiver and transfer documentation within the same day of admission using a standardised template designed to document data on all the relevant events from the time of the injury to arrival at the burns centre. This data was collected by the investigators who are senior hospital Burns Unit staff. Details of subsequent treatment at the burns unit and outcome were not included. Information included socio-demographics and burn related characteristics, the management of the child at the site of injury, and by the referring clinics or hospitals, first aid, wound cover, resuscitation, analgesia and transport. Data was entered onto a proforma and subsequently transferred to a secure excel database for analysis. Admission criteria were burns >10% total body surface area, age under 1 year, electrical burns, burns in special areas such as the face, hands, and perineum, suspected child abuse and inhalation injury. Economic status was determined by their hospital admission code and residential area plotted on a map of greater Cape

Town to determine the suburbs involved. Ethical permission for the study was obtained from the local institutional review board and the University of Cape Town's Human Research Ethics Committee [HREC REF 283/2013].

The results obtained were compared with four international studies on pre-hospital management of paediatric burns [2–5].

## 3. Results

A total of 353 children were included in the study, of whom 189 [53.5] were male Patient and burn characteristics are depicted in Table 1. Their ages ranged from 1 month to 14 years, 65 [18%] were under 1 year of age, 110 [31%] were between 1 and 2 years and 178 [50%] were older than 2 years. The average total body surface area [TBSA] of 15% [1–86%]. One hundred and fifty two [43%] burns were greater than 10% TBSA, and 223 [62%] burns involved special areas [often as part of other burns sites]. Most of the injuries were due to hot water accidents followed by flame burns, direct contact and electricity burns. All the electrical injuries were the result of illegal tampering with low voltage electrical sources [<1000 V]. House fires caused extensive burns in nine children.

Twelve children were intubated: five had clinical evidence of inhalational injury [aspiration of hot water] and seven with major fire burns were prophylactically intubated as part of airway protection, six at the referral centre and one in transit. Non-accidental injuries occurred in three patients, one child was held in hot water while two had flammable substances poured over them and were set alight. No escharotomies were needed before arrival at the burns centre.

Two Hundred and nineteen children [62%] were seen at local clinics before transfer to the burns centre. Ninety-one [26%] were initially treated at a day hospital, while 37 [10%] presented directly to the burns unit and six initially presented to a general practitioner.

The majority of patients went by their own transport to the first point of contact and only 47 made use of ambulance services. The greater majority of patients [247] were transported to the burn unit from the community health centres or day hospitals by ambulance – but of note, 65 patients still used their own or public transport for inter facility transfer.

**Table 1 – Demographics of paediatric burns.**

Demographics	
Number	189 boys; 164 girls
Age in months	40 (1–171)
Body mass kg	15.1 (5.4–43)
Aetiology	
Scalds	277 (78.5%)
Flame	32 (9%)
Contact	21 (6%)
Electrical	17 (5%)
Paraffin	4
Other	2
Burn surface area	
TBSA	15.1 (1–86%)

Download English Version:

<https://daneshyari.com/en/article/6048623>

Download Persian Version:

<https://daneshyari.com/article/6048623>

[Daneshyari.com](https://daneshyari.com)