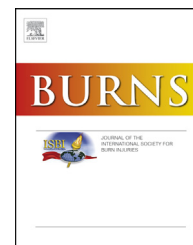


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## Parent knowledge on paediatric burn prevention related to the home environment

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### ABSTRACT

**Introduction:** Burns amongst children in South Africa are common and usually occur in the immediate home environment. In surveys many parents have requested ongoing educational burn prevention programs. This exploratory thematic parent orientation study assessed the level of parental knowledge on burn prevention strategies in the home.

**Methods:** Study populations included: Parent with a burned child admitted to hospital, parents of non-burnt hospital attenders and hospital naive parents unbiased by previous exposure to burns. Participants answered a burn prevention questionnaire consisting of five sections. In this, two pictures depicting the circumstances associated with paediatric burns sustained at home were used, one with 15 potential danger points and one sanitized. There was no educational intervention prior to parents viewing the pictures.

**Results:** There were 268 participants; 72 burnt inpatient, 97 non-burnt outpatients and 99 hospital naive participants. The inpatient population displayed the highest incidence of informal housing. A positive relationship was identified between the overall study population and burns general knowledge and prevention. Educated participants were more knowledgeable about burns and better at identifying risk factors. Knowledge about burns was higher in the outpatient population and the highest in the Naïve group when compared to the Inpatients group ( $p < 0.01$ ). The naïve group scored higher in prior knowledge about burns and burn prevention. Of the potential 15 danger points only four of 72 inpatients and three of 97 outpatients identified more than 80% of the potential danger points as compared to 43 of 99 of the naïve group. The dangling kettle cord, the use of a mug to pour paraffin into a lantern and the child pulling a tablecloth were the most common dangerous aspects identified. We demonstrated a positive correlation between participants' ability to identify potential dangers, identify safe practice and implementing safe practice.

**Conclusion:** Our findings show that people living in environments optimal for burn incidents know relatively little about burn prevention strategies. Future intervention needs to not only target the population's behavior but most importantly needs to promote better education models.

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## 1. Introduction

In low- and middle-income countries burns remain responsible for a large burden of death and disability. With an annual worldwide incidence of almost 11 million patients affected per year, major burns have a higher annual incidence than HIV and tuberculosis combined [1].

Burn prevention in resource restricted countries may be the only available way to reduce the morbidity and mortality of burns. Prevention strategies need to be targeted to high risk groups and aimed at inherent problems in a particular population [2–5]. Caregivers' beliefs and a lack of an enabling environment increase the risks at home.

The Western Cape Province has an estimated 4.2 million inhabitants of which 1.3 million are under 15 years of age. The greater majority of children with burns come from informal settlements and under privileged areas. Children less than four years are at highest risk of burns with an average annual rate of 6.0/10,000 child-years and a mortality amongst burnt patients of 7.9 per 100,000 person-years as reported in 2009 in Cape Town [3].

Many local causative factors have been identified with 80% being hot liquid related, 12% fire burns, 5% electrical burn and 3% hot coals burns [6,7], but without alleviating poverty, creating and enforcing minimum standards for housing, providing burn education, using safe appliances, developing legislation and improving communities, we will continue to treat the consequences [4,7–9].

These factors are not easily rectified, however, due to inherent difficulties to change the socio-economic environment, human behavior shortcomings; poverty, overcrowding with unsupervised children, population density and unsafe appliances which are all inherent amongst the population in the study.

Many injury prevention methods have been developed with most applicable to high income countries (HIC) and may not be appropriate in our situation [10]. They have been very successful in reducing burns amongst children and include safe hot water temperature, flame resistant clothing, functioning smoke detectors and the use of fire guards. Home safety education brings the message directly to the household, but it must be coupled with the provision of safety equipment and legislation to reduce thermal injuries amongst children [11]. These interventions are difficult and costly to implement in a resource poor environment and in addition many focus on housing situations vastly different from the local reality. Currently burn education programs are conducted through ChildSafe South Africa, a NGO. This organization has limited resources and as such is unable to cope with the vast need of the underprivileged patient population.

Without knowledge of where to target educational programs in our local resource restricted environment, any burn prevention programs may be difficult to implement. In order to develop effective safety programs the risk factors and understanding of the target population needs to be known [2]. The purpose of this thematic content parent orientation study was to assess the level of parental/caregiver knowledge on burn prevention strategies related to the home environment in Cape Town families and to

describe the demographics, causative links and pitfalls surrounding these families.

## 2. Methods

Three different sub-types of study population were identified:

- A parent with a child who had been admitted to hospital with a burn (Inpatient Group).
- A parent of a child attending the hospital for an appointment unrelated to any form of burn (Outpatient Group).
- Naive parents unbiased by previous occurrence or personal exposure to a burn from the community (Naive Group).

All children were less than 13 years of age. All participants were briefed about the research project. Participation was voluntary and anonymous and informed consent was taken from all respondents.

Patients were recruited by the investigators. The inpatient group was recruited while the child was receiving treatment in the burn unit. The outpatient group was a random selection of parents waiting for their child to be seen in a surgical clinic. The naïve group was a random selection of parents from a cultural centre in the same community with a similar background. All in this group had children less than 13 years of age who had not sustained burns before. Participants were excluded if they did not give informed consent, or their children were not under 13 years of age.

The community burn prevention questionnaire consisted of five individual and overlapping sections:

1. Parents demographics and household characteristics.
2. Knowledge regarding burn prevention strategies derived from the following questions:
  - Did you see, hear or read anything about burns?
  - Do you know anything about treating a burn?
  - Do you know of any burns prevention method?
3. Responses to illustrations regarding dangers present in the home.
4. Responses to illustrations regarding interventions to safeguard living spaces.
5. The availability of safety precautions in their homes.

For the inpatient population only, two further questions were asked to evaluate the effect of their stay in hospital on their knowledge:

1. Have you learnt anything new about burns during your stay in hospital?
2. Have you learnt how to treat a burn?

To answer parts three and four, respondents were presented with two pictorial scenarios depicting the kitchen where most burns to children occur and typical of a low income house [12]. These pictures were provided by Hesasa [Household Energy Safety Association] and had previously been verified for their accuracy. They have been used for over 10 years as an educational tool. The first picture (Fig. 1) depicted circumstances that could lead to scalding and flame

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