

## BURN CARE IN SOUTH AFRICA

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Although childhood burns are largely preventable, Africa carries an extraordinary burden of thermal injuries with devastating consequences. It is estimated that over a million patients are burned annually on the African continent. Eighteen per cent of hospital admissions are due to burns, with a mortality of 6 to 10%. A South African survey showed thermal injuries to be the commonest external cause of death under the age of 4 years and the third commonest cause of injury fatalities under the age of 18. A Medical Research Council report showed that 3.2% of South Africa's population will suffer from thermal injuries annually, 86% being classified as minor and effectively dealt with by nurse practitioners and medical doctors. There are six established burn centres in the country where only the most severe cases are dealt with. Other moderate to severe burns are treated in general or district hospitals where there are no specific established facilities for burn patients. Burn injuries therefore remain a major public and urgent health problem in terms of morbidity and long-term physical and psychosocial disability.<sup>1,3</sup>

A recent South African epidemiologic study has divided thermal injuries in children into four typical classes. Class 1 is characterized by infant burn injuries due to scalding at home. Class 2 typifies 2 to 3 year old children with burns caused by their mobility and curiosity in a home environment. Class 3 reflects the increasing physical mobility and social independence of pre-school and older children and their high-risk activities with an over-presentation of flame-related burns. Class 4 included other causes and injuries to the head and neck region. Twenty per cent of these injuries occur amongst toddlers. Boys are more commonly affected than girls and in the adolescent age group more girls would sustain burns due to their increased involvement in household chores. The picture is different amongst adults: assaults are responsible for 37% of the burns, accidents (flame and scalds) 20%, shack fires 15%, domestic stoves 5%, epilepsy 8%, electrical 6%, self-inflicted 5%, industrial and chemical 2%, and others (contact, cold injuries) 2%.

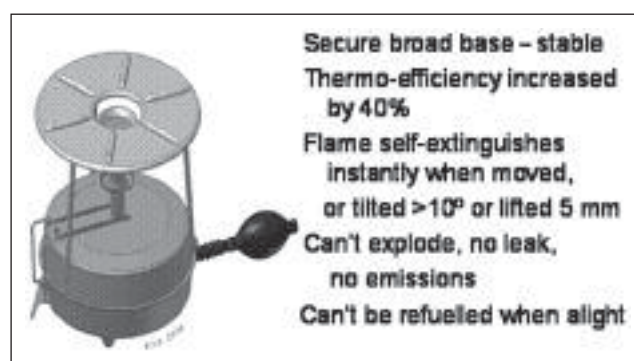


Fig. 1 - Parasafe, the new paraffin pressure stove.

The question is often asked "Why are burns so common in the developing world?" There is overwhelming evidence that childhood burns are largely environmentally conditioned and preventable. The high incidence is driven by negative impact factors including influx of people to urban areas, haphazard urban development, inadequate electrification of homes, paraffin used as a primary energy source, and failure of preventative programmes. Urban migration, poverty, and the development of slum areas relate significantly to overcrowding and the risk of burns. In low-income households, kerosene constitutes 56% of the energy source and 21 million households in South Africa use kerosene as a daily energy source, constituting 25% of income spent on energy sources. It is estimated that there are approximately 45,000 paraffin-related fires annually and 3000 deaths. This is predominantly due to the use of faulty kerosene appliances, contaminated fuel, under-regulated supply chains, and violation of standard safety principles. A new paraffin stove is being developed (Fig. 1) which has a secure broad base, is thermo-efficient, can't be refuelled when alight, and self-extinguishes instantly when moved or tilted more than 10 degrees or lifted more than 5 mm. It is hoped that the Parasafe stove, when implemented on a national scale, will significantly reduce the

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high incidence of kerosene-related burn injuries. This may be a small measure but it may have significant positive consequences. Management is further complicated by family traditions and beliefs and traditional treatment methods. Many still use, as initial therapy, traditional methods including oils, butter, gentian violet, eggs, and milk. In addition, underlying health problems can increase both the risk and the outcome of burns, such as epilepsy or conditions leading to febrile seizures.

Burn care is variable in terms of organization, clinical management, facilities, staffing, workload, and outcome. It is predominantly emergency-driven, lacking uniform access to quality services, and struggling with fiscal restraints. The developed world uses 5-6% of the gross domestic product on health care – \$US 2000 per patient per year. In South Africa \$US 370 is used per patient per year for health care. With the massive migration from other African countries to South Africa and the urbanization of the rural population, drastic measures have to be implemented. It is doubtful though whether the political will will be there to turn the tide around.

It is accepted that burn care is very expensive and, seen in its totality, it has to compete financially with the fourfold epidemics prevalent in South Africa at present. Maternal, newborn, and child health is problematic and we carry a burden three to four times more than the average for comparable countries. HIV/AIDS and tuberculosis have placed an enormous management and financial burden on the country. South Africa has 17% of the HIV load, which is equivalent to 23 times more than the global average. For violence and injuries we have twice the global average for injuries and five times for homicide. Other non-communicable diseases are also common, with South Africa having two to three times more non-communicable diseases than the average for developing countries.

Burns are predominantly preventable and the following measures would not be out of reach of the national, provincial, and district authorities to implement. These would include: urban regeneration and creating an enabling environment; the provision of safe energy sources; the re-organization of burn services; legislation to improve building standards; the provision of safe cooking, heating, and lighting facilities; effective prevention and education meas-

ures; and establishing adequate treatment and rehabilitation facilities which are sadly lacking.

The introduction of identifiable intervention programmes can reduce the high prevalence of burns. Burn preventative programs should include multi-pronged community-based interventions. Emphasis must also be placed on the awareness of causes, prevention strategies, and the short- and long-term effects of a burn. Urban regeneration must be on a structured basis and a network of burn injury services needs to be developed where patients receive the appropriate care. Such a network is currently being established in South Africa. Non-complex injuries would be treated by general practitioners, district nurses, and at clinic level. For the next level of severity, patients would receive treatment at emergency departments, residing in day hospitals, primary health care facilities, and district hospitals. For the next level of burn injuries the patients would be dealt with at regional hospitals, while for major burns (more than 20% TBSA) and burns of a special nature care would be provided at regional burn facilities or units, of which there are only a few in South Africa. Additional factors may include electrification of all formal and possibly informal settlement areas, the use of safer paraffin stoves, and legislation to address identified health hazards.

Burn injuries result in significant physical and psychological complications that require comprehensive rehabilitation. Unfortunately, these facilities are grossly underdeveloped and treatment programmes focusing on the prevention of long-term problems with scarring, contractures, and other factors that limit physical function are not adequately developed. There is a 90% dropout within one year from rehabilitation programmes, which hampers the re-integration of patients into their communities.

The challenge of adequate burn care in South Africa predominantly depends on the successful prevention of thermal injuries, on social standards being improved, on government-supported health education programmes, legislation and public prevention campaigns, the electrification of informal settlement areas, the provision of safe kerosene appliances, and a restructuring of the health services responsible for burn care. A major deficiency is the lack of physical and psychosocial rehabilitation, with burn victims not being recognized as disabled.

**Keywords:** burn treatment, South Africa

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