

## The management of burns begins at home



Burn injuries remain a significant cause of trauma, especially in low- to middle-income countries. The start point for reducing burn injuries lies in prevention, and education on risk factors for burn injuries begins in peoples' homes. The World Health Organization (WHO)<sup>[1]</sup> in collaboration with various burns societies has prioritised prevention of burns and support for burns control measures.

Fire-related burns are responsible for an estimated mortality rate of 6.1/100 000 population per year in Africa,<sup>[1]</sup> much higher than the 1.0/100 000 in high-income countries. Worldwide, burns account for 10 million disability-adjusted life years. The WHO and burns organisations are aware that in low-income countries, rural and poor urban communities, lacking access to electricity, face a mix of risk factors such as ground-level cooking pots, open wood fires, candles and paraffin (kerosene) stoves of questionable safety.<sup>[1,2]</sup> Efforts have been made to introduce safer paraffin lamps into South Africa (SA) in the hope that the number of burn injuries will be reduced.<sup>[2]</sup>

Children are at particular risk of household accidents involving cooking pots, open fires and stoves. Research by Scheven *et al.*<sup>[3]</sup> and Fiandeiro *et al.*<sup>[4]</sup> in KwaZulu-Natal reports that the majority (~70%) of burns occur in children; hot water scalds and burns are responsible for the majority (~60%) of cases. Allorto *et al.*<sup>[5]</sup> reported that 83% of burns in children are hot water-related. Of great concern are the number of non-accidental burn injuries (NAIs) in children. Scheven *et al.*<sup>[3]</sup> reported 16 cases of NAI in children in KZN (5.4%) and Allorto *et al.*<sup>[5]</sup> 12 (5.9%), resulting primarily from immersion of the limbs and buttocks in hot water.

The majority (86%) of burn injuries in SA are classified as minor, most being from hot water.<sup>[2]</sup> First-aid measures are particularly effective. The therapeutic effectiveness of cooling burn wounds is borne out in numerous studies.<sup>[6-8]</sup> Authors are agreed that the application of cool (not iced) water to burns for 10 - 20 minutes early after the injury improves healing and reduces complications.<sup>[6,9-11]</sup>

However, this simple yet effective treatment was seldom used in the KZN studies. Fiandeiro *et al.*<sup>[4]</sup> and Scheven *et al.*<sup>[3]</sup> both showed that only about 20% of patients received cool water as first aid, while very few received water cooling for the recommended minimum of 10 - 20 minutes. When large burns are treated, the cautionary mantra of 'cool the burn and not the patient' is important – rendering the patient hypothermic from cooling methods does not improve outcome, but rather risks increasing morbidity and mortality.<sup>[12]</sup>

Covering the wound with a dressing also forms part of first-aid measures. Application of extensive dressings and bandages is not recommended because of resultant time delays. Rather, the recommendation is to use a simple dressing such as cling film, which is easily and rapidly applied (thus reducing time delays), provides adequate cover to burn areas, and permits wound inspection without having to be removed when the patient arrives in hospital.<sup>[9]</sup>

Pain control is an important early intervention. Cool water applied to the burn site will reduce pain and discomfort, and additional simple analgesia such as paracetamol can be taken at home as soon as possible. With significant burns, stronger, centrally acting analgesics such as opiates may be necessary. The advanced life-support paramedic can initiate an opiate such as morphine during the prehospital phase.

Prehospital healthcare practitioners should assess all major burns comprehensively. A primary survey should be carried out, with special attention given to the airway, breathing and circulation. Where required, intubation for airway protection should be considered and intravenous fluids initiated. A final check is required to ensure that related trauma such as fractures and head injury have not been missed and that comorbidities such as epilepsy and electrocution have been considered.

The chain of burns treatment begins with prevention, followed by simple first-aid measures and effective prehospital care, consolidated by appropriate assessment and resuscitation in the emergency department and ending with specialist management in a dedicated burns unit with allied rehabilitation facilities.

### Darryl Wood

*Division of Emergency Medicine, School of Clinical Medicine, College of Health Sciences, Nelson R Mandela School of Medicine, University of KwaZulu-Natal, Durban, South Africa*

**Corresponding author:** D Wood (darryl.wood@kznhealth.gov.za)

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