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Burns first aid treatment in remote Northern Australia

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ABSTRACT

Background and objective: It is well demonstrated that adequate burns first aid treatment (BFAT) improves clinical outcomes for the injured but adequacy remains low in many studies. This study presents a twelve month assessment of the adequacy of burns first aid treatment for patients managed by the Burns Service, Royal Darwin Hospital (RDH).

Methods: Prospective study design of all patients managed by the Burns Service, Royal Darwin Hospital. Data were collated from two sources; RDH Burns Registry, and the Burns Registry of Australia and New Zealand (BRANZ). Inclusion criterion was all patients managed by the Burns Service, Royal Darwin Hospital for the period 1 January 2014-31 December 2014. Variables collected and analysed include: demographics, burn mechanism, burn wound depth and adequacy of and circumstances around first aid.

Results: Overall 310 cases were analysed. Most injuries involved adults (68%), 19% Indigenous persons and 70% of all patients had their burn injury occur in the urban region. Adequate BFAT occurred in 41% of cases. Adults, contact burns and those where the burn injury occurred in the remote regions were less likely to receive adequate BFAT. Indigenous persons were less likely to attempt any BFAT at all and when they did receive BFAT it was more likely applied by an emergency responder or health professional.

Conclusion: Overall adequacy of BFAT is low in the Top End of the Northern Territory. Remote dwellers and Indigenous persons are at increased risk of not applying or receiving adequate BFAT. The poor level of adequate BFAT demonstrated in this study suggests that the Top End community particularly remote and Indigenous persons would benefit from targeted BFAT education programs that are delivered in a culturally and linguistically appropriate fashion.

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1. Introduction

Burns first aid treatment (BFAT), defined as twenty minutes of Cool Running Water (CRW) [1] has shown to lessen burn depth,

[2] improve reepithelialisation and scar quality in animal models [3] and is associated with improved clinical outcomes in partial thickness burns [4-6]. Despite the fact that BFAT is a simple intervention that the patient or bystander with access to water can potentially deliver, the 2014 Annual Reports from

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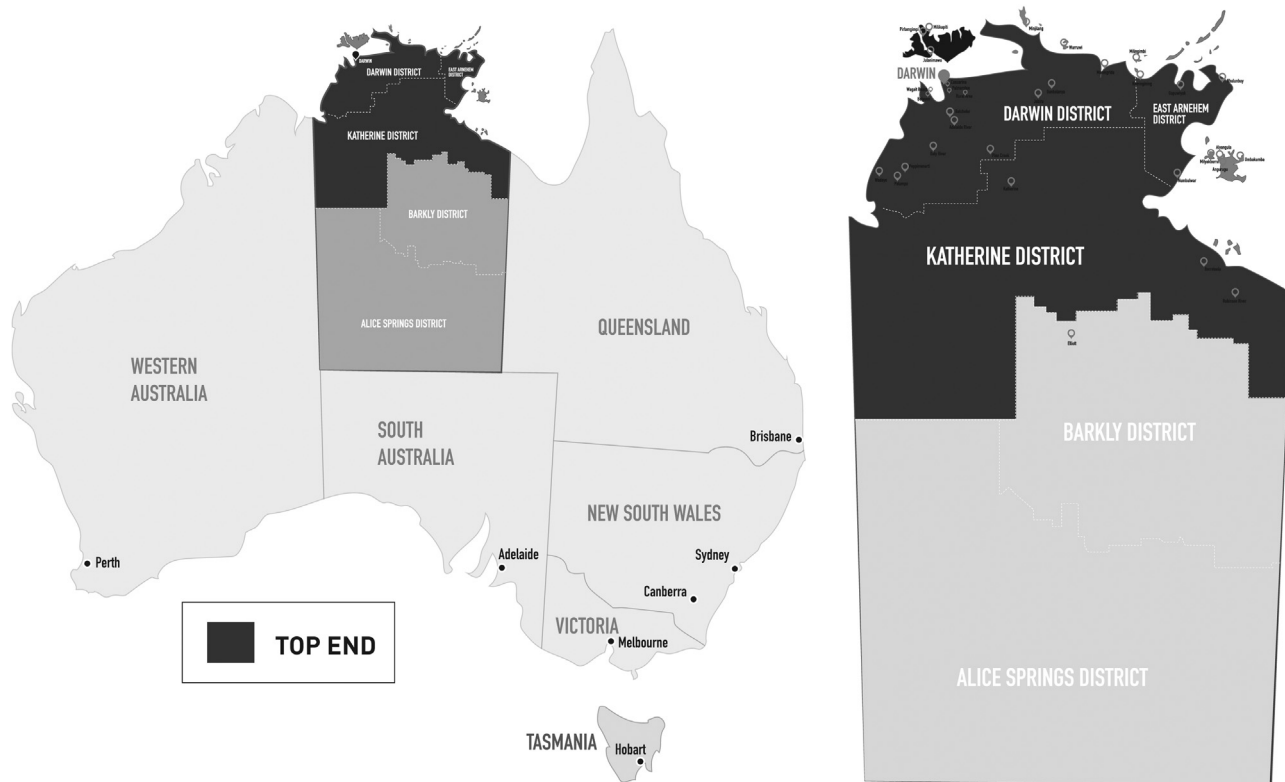


Fig. 1 – Geographical catchment area of Royal Darwin Hospital Burns Service.

the Burns Registry of Australia and New Zealand (BRANZ) show that although 71% of adults and 80% of children received first aid treatment with CRW, only 42% of adults and 23% of children received the recommended 20min [7]. Various audits demonstrate that knowledge and application of BFAT across the spectrum of carers, health staff and the general public were variable [8-10]. Furthermore, many traditional remedies continue to be used for BFAT [11], some of which have been shown to be ineffective or potentially detrimental [12].

Whilst other studies have investigated BFAT knowledge and application in various Australian settings [8-10] none have exclusively examined the Northern Territory (NT), Australia. The NT is colloquially divided into two geographical regions, the northern tropical end 'Top End' and the central 'Red Centre'. Three quarters (~142000) of the NT population live in the Top End [13] this includes the capital Darwin, the Katherine region to the south as well as the Arnhem region (Fig. 1) producing a very low population density. The region is served by a solitary tertiary referral hospital which contains the specialist burns service (Royal Darwin Hospital), two general practitioner led regional hospitals (Gove District Hospital, 32 beds and Katherine Hospital 60 beds) and multiple nurse led health care clinics.

The aim of this study is to identify those who are receiving adequate BFAT and compare variables to those patients who did not receive adequate BFAT for all patients managed by the RDH Burns Service over a twelve month period.

¹ BFAT: burns first aid treatment. CRW: cool running water. RDH: Royal Darwin Hospital. TBSA: total body surface area.

2. Material and methods

2.1. Setting

RDH is a 350 bed referral hospital located in the capital city of the Northern Territory. It is the only referral hospital for a population of 150000 and serves as the referral centre for a catchment area over 500000square km [13]. Over 30% of the Top End population live remotely [14] and Indigenous Australians represent 30% of the population [15]. As a collaborator on the BRANZ the Burns Clinical Nurse Consultants' prospectively collect inpatient data. In addition to BRANZ data collection all outpatient burns service consultation data is collated on the RDH Burns Registry.¹ Standard interview is used to collate patient data. All patients were asked at initial Burns Service consultation specifically if BFAT was administered and if so; whom by, the methods and from where did the injured patient or carer gather the knowledge about BFAT.

2.2. Participants

Inclusion criteria: All paediatric (0-15 years of age) and adults (>16 years of age) who were managed by the RDH Burns Service; either inpatient or outpatient management between 1st January 2014 and the 31st December 2014. Mechanism of burn injury included were; scalds, contact, fire, chemical, electrocution and radiation.

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