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Evidence-based first aid advice for paediatric burns in the United Kingdom



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ABSTRACT

Background: Burn and scald injuries are common in children. First aid advice for paediatric burns is offered by a range of health organisations and charities in the UK. Despite this, children still present to emergency departments and burn services having received little or inadequate first aid.

Method: A survey was undertaken regarding the content and consistency of the advice given by a cross-section of UK health organisations involved in first aid prevention and education. The advice was subsequently examined to determine if it was evidence-based.

Results: Our study has demonstrated inconsistencies in the content of the first aid advice provided by the 21 organisations included in the study. Seventy-one percent of the information was only available online. The temperature, method and duration of cooling varied substantially, as did the advice recommended for the removal of clothing and jewellery and methods for covering the burn immediately after injury. Results from the literature review concluded the following based on available evidence; cool the burn with running tap water for 20 min, remove clothing and jewellery and cover the burn with cling film or a clean non-adhesive dressing.

Conclusions: This study highlights the lack of consistency between first aid guidance provided by health organisations and charities in the UK.

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1. Introduction

Burn and scald injuries are common in children. Every year 25,000 children attend Emergency Departments (ED) in England and Wales with a burn or scald, and approximately 3800 are admitted to hospital for further treatment [1]. The majority (70%) of these burns occur in the home [2] and the most common cause is scalds from hot drink spillages [1,3]. Adequate immediate first aid using cooling has shown to improve burn outcome preventing further tissue damage and

associated morbidity [4,5]. Current awareness of appropriate first aid for burns in children in the UK has been shown to be inadequate with poor parental knowledge resulting in the delivery of inadequate first aid for burn injuries [6].

Cold water for the treatment of burn injuries has been recommended in British first aid manuals since 1965 [7]. Despite this, children still present to the ED and burn services having received little or inadequate first aid. A 12-month prospective study in 2007 evaluated epidemiological burn patterns and final outcomes for all thermal injuries affecting children less than 16 years of age presenting to one ED in the

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UK. One third of these children had not received any first aid prior to attending [8]. A study in 2012 assessing knowledge of first aid amongst parents in South Yorkshire identified that 90% were unaware of all the key steps of first aid for burns [6].

A range of organisations in the UK offer first aid advice for burns in children. These include prevention charities such as the Child Accident Prevention Trust (CAPT), medical aid charities including St John's Ambulance and the Red Cross, National Health Service providers, governmental organisations including the Health and Safety Executive and the Department of Health and private health companies on open access internet websites. The dissemination of first aid advice is primarily through internet sites in text or audio–visual media. A minority of organisations provide leaflets that are distributed to local schools, children's centres or via direct health promotion through health visitors, midwives and general practitioners.

We undertook a survey to examine the content and consistency of first aid advice currently available to the general public in the UK for burns and scalds in children. A literature review was also performed to determine whether the information provided was evidence-based.

2. Methods

2.1. Survey

In April 2013, a list of UK organisations involved in first aid prevention and education was compiled for inclusion in the survey. These comprised of recommendations made by burn surgical consultants, anaesthetists, burn nurses and clinical burn research nurses. Organisations were also identified through an internet-based search using the Google search engine with the following terms; first aid, burns, charity and UK.

Organisations were considered relevant after analysis of the information they provided. The information was judged against the following criteria: first aid advice, accessible to the general public, relevance to burns and UK origin. The resulting list included national and burn specific registered charities, commercial companies, local and national healthcare providers, open access health information and governmental organisations. The organisations chosen were representative of first aid advice provision for children's burns in the UK and not intended to be an exhaustive list.

The organisations were contacted over a two-week period to complete a short structured interview undertaken by a single researcher (AV) using the following open and closed questions:

- (1) Does the organisation provide formal first aid advice, guidelines or protocols to the general public?
- (2) In what format is this advice given?—Verbal, printed information or internet based?
- (3) What is the content of the information?

Organisations were given the choice to answer the questions via a telephone consultation or to complete an electronic version via email. All organisations contacted

completed the interview. Copies were obtained of any advice produced in a printed format.

2.2. Literature search

We also undertook a literature search in order to identify whether the first aid advice provided by the organisations included in the survey was evidence-based and to summarise the optimal first aid treatment for burns supported by scientific research. The following databases were searched in February 2014 for relevant articles; Cochrane central register, Medline 1950 to present and Embase (1980–2015, week 12). The following key words and MESH search terms were used: First Aid/, treatment.tw., management.tw., advice.tw., information\$.tw., Exp Burn/, scald.tw., child\$.tw. and paediatric\$.tw. The main points from the relevant articles were summarised under the following topic headings: cooling the burn, removing clothing and jewellery and covering the burn.

3. Results

Thirty-four organisations were identified for inclusion in the survey classified across five categories (Table 1). First aid advice intended for the general public in the format of guidelines or protocols was provided by 21 of the organisations. The remainder either did not provide specific guidelines, or the information they presented originated from one of the 21 organisations that did provide guidelines.

First aid advice was accessible via an internet webpage by 15 organisations (71%) as text or as a downloadable and printable leaflet. Printed materials offering first aid advice were provided by four organisations: two in the format of short leaflets, and two as content within published first aid manuals. Verbal advice through a telephone consultation only was offered by one organisation, and advice was printed on a promotional item (tea towel) by one organisation (Table 2).

The content of the advice offered varied substantially between organisations, and will be discussed under the three key principles of burn first aid; cooling the burn, removing clothing and jewellery and covering the burn.

Results from the literature search produced 48 articles. After evaluation 25 articles were considered relevant. The remainder either did not reference first aid information or studied different outcome variables not relevant to this survey. In addition to first aid, the epidemiology of burns in the UK was cited in three prospective studies [1,2,8], the financial cost of burns in one study [3] and a prospective study and one case series investigated the adequacy and assessment of initial burns care and subsequent treatment required [4,5]. Two articles evaluated parental knowledge of first aid in the UK [6,9]. Four review articles covered the principles of first aid and guidelines for prehospital care of burns [7,10–12]. Thirteen animal trials were assessed, 7 of which used porcine burn models. Of these studies, four evaluated the beneficial cellular effects of cooling [13–16], one reviewed wound healing [17], five investigated cooling techniques to determine the optimal temperature of burn first aid treatment [18–22] and three

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