Submission No. 004
(Burns Prevention)
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Background

Burn injuries represent a leading cause of unintentional injury mortality and morbidity and have been described as being one the most devastating of injuries among people of all age groups (Mashreky et al 2008).

Many burn injuries lead to prolonged and expensive hospital stays (Peck, Molnar & Swart 2009) requiring specialised staff and medical technologies that are expensive and not always readily available (Mashreky et al 2008). As well as prolonged hospital stays burn injuries can be associated with permanent injury and emotional stress, creating an economic burden for families as they disrupt the ability of family members to work (Mashreky et al 2008).

Burns are a leading cause of disability and disfigurement which limits functional ability, reducing the chance to lead normal, economically productive lives, often resulting in social stigma and restriction of participation in society (WHO 2008).

The World Health Organisation (WHO) have been working collaboratively with a number of organisations to develop strategies to improve the prevention of burn injuries worldwide. The First Consultation Meeting on the Prevention and Care of Burns was held in April 2007 and as a result, a global 10 year strategy of prevention and treatment of burns has been developed for 2008-2017 (see Table 1). The principal objectives behind the strategy's framework are:

- To build understanding of the nature, extent and preventability of burns;
- To achieve the strongest possible impact by fostering and building partnerships to address burns;
- To foster and build capacity to undertake effective interventions and to evaluate their effectiveness.

Table 1.

THE BURN PLAN
1. ADVOCACY
• Raising awareness • Promoting and supporting action • International, multisectoral cooperation
2. POLICY
• Effective and sustainable burn prevention and care policies • Action plans, legislation, regulations, enforcement
3. DATA AND MEASUREMENT
• Magnitude and burden • Risk factors
4. RESEARCH
• Set agenda of priorities • Promote and foster trials of promising interventions
5. PREVENTION
• Stronger, more effective burn prevention programmes • More countries with national burn strategies
6. SERVICES
• Strengthen treatment services available • Acute care • Rehabilitation • Recovery
7. CAPACITY BUILDING
• Sufficient knowledge and skill to effectively carry out all of the above components of the Burn Plan

The WHO advocates that the role of Public Health in reducing the burden of burn injuries is as follows:

- To describe the magnitude of the problem by collecting data on mortality and morbidity from burn injuries
- To study the risk factors and protective factors
- To show the economic impact of burns on the community in order to provide a basis for cost-benefit analysis of safety improvements
- To ensure appropriate pre-hospitalisation and hospital care and rehabilitation of patients with burns
- To promote safety education
- To monitor and evaluate interventions
- To promote prevention measures and policies.

(WHO Burn Factsheet)

Inequity of Injury

“Burn injuries are dramatic examples of inequity” - the burden of burn injuries is primarily borne by those low–middle income countries where burn prevention programmes are uncommon and the quality of acute burn care is inconsistent (Peck et al 2009). Even in high income countries burn injuries often occur out of proportion among racial and ethnic minorities – it is the socioeconomic status rather than cultural or educational factors that will account for the susceptibility to a burn injury (Peck et al 2009).

This is supported by WHO in their statement that overcrowded living conditions, lack of proper safety measures and insufficient parental supervision of children – factors associated with low socioeconomic status – contribute to the occurrence of burn injuries (WHO Burn Factsheet).

The Australian and New Zealand Burn Association (ANZBA) Burn Prevention Committee submits the following as recommendation for burn injury prevention throughout Australia and New Zealand.

Prevention

Prevention takes time, energy and money however there is an abundance of documents stating that prevention is the ideal solution to reducing the burden of burn injury (Atiyeh, Costagliola & Hayek 2009).

There are many successful burn prevention programmes that are developed at a local level however coordination of prevention strategies on a national level is necessary (Hunt, Arnoldo, Purdue 2007).

Burn prevention strategies have been found to be very cost effective (WHO 2008, Atiyeh et al 2009).

The WHO Burn Prevention plan aims to reduce the burden of burn injury. The prevention component of the plan advocates for stronger, more effective burn prevention programmes and more countries with national burn prevention strategies (WHO 2008).

Prevention measure must also be evaluated in regards to their effectiveness of the method of delivery and the ability to assist to reduce the burden of burn injury. This evaluation can require significant investment to achieve but must be considered as part of the work of prevention (Spallek et al 2007).

Introduction

Although it is important to change legislation and enforce modifications it is essential to utilise media to publicise the risks and the importance of prevention. Investment in publication and promotion of the risks of burn injury is paramount to a successful prevention campaign and significant expenditure is required to ensure this is delivered in an effective manner to the greater population.

The ANZBA Burn Prevention Committee is currently developing a first aid education campaign which has two main aims.

1. To educate the population on the importance of timely and effective first aid to minimise the devastating effects of burns.
2. To raise the profile of burn injuries which we hypothesise will have a preventative effect by making people more aware of the dangers and take steps to avoid them.

It is hoped that these aims will be addressed using multiple methods including internet-based education and community service announcements. This campaign is reliant on adequate funding and support to enable the message to be disseminated and it to be of benefit in reducing burn injury numbers.

In regards to burn prevention initiatives for parliamentary consideration or legislation the Prevention Committee makes the following recommendations regarding:

1. Hot water systems
2. Hot water bottles
3. Cigarette lighters/matches
    a. Novelty
    b. Age restrictions on purchase
4. Fireworks
5. Electrical switchboards
6. Domestic treadmills
7. Availability of flammable liquids
8. Flammable clothing labels – adults and children
9. Campfire guards

1. Hot Water Systems

In the1990s a lengthy national campaign ensued which highlighted the issues of scald, hot liquid, burns from hot water systems, especially in children. This campaign was entitled “Hot Water Burns Like Fire” and consisted of an introduction of a safety standard and a media campaign. The safety standard recommended that all new hot water systems regulated the delivery of hot water to 50ºC in sanitary fixtures. Most systems were previously set to deliver water between 65° and 75ºC which could cause a full thickness burn in seconds. By limiting this water temperature the length of time needed for a severe burn to be

inflicted is increased, allowing time to withdraw the body part from the heat source.

Since the initial campaign there has been little work conducted to follow-up on this issue. The safety standards are incorporated in the Building Code of Australia and enforced when building a new residence, either domestic or industrial. Unfortunately these changes only affect new building, not existing ones where many of the burn injuries occur (Harvey et al, nd). This is especially important for elderly people living in their own homes. There have recently been a number of severe hot water system burns being sustained by elderly people. These burns are often sustained on the feet and buttock area causing long term management issues and even death. The risk of death rises rapidly as age increases and serious associated diseases get more common. Amputations of lower limbs and permanent colostomy (diversion of the bowel on to the abdominal wall) can be required to keep these patients alive.

Recommendation:
Further work is necessary for changing both temperature regulation of hot water delivery in existing structures and also highlighting this issue to the greater population. Elderly persons living in their own homes must be considered high priority for water temperature system regulation for their homes, along with rental properties where tenants may have little knowledge of the system installed. Mandatory installation of a temperature controlling mixing head in domestic bathrooms is a cheap and easy option for retro fitting existing dwellings.

2. Hot Water Bottles

During colder months many people utilise hot water bottles. Contrary to recommendations and hot water bottle product abilities many people fill these products with boiling water. The products often weather significantly with this added stress and the material degrades causing splitting. As the bottles are often in close proximity to the skin a scald burn occurs when the split spurts boiling water onto the person. People suffering reduced or absent sensation to feet and legs due to conditions such as diabetes can sustain severe burns from hot water bottles. This occurs due to their lack of sensation as they can have a long exposure to heat from leaking water or contact with the hot external surface of the bottle.

The Australian Competition & Consumer Commission (ACCC) is in the process of reviewing the national mandatory standard for hot water bottles which has been in place since 1 June 2008. They aim to develop a considered and comprehensive response to the issue of hot water bottles in order to prevent unnecessary injury. In 2009 two hundred and fifty thousand (250,000) hot water bottles were recalled due to defective manufacturing (NSW Government Department of Fair Trading 2/9/2009).

Recommendation:
These products should be required to undergo stringent testing and meet strict safety standards to ensure that they are capable of sustaining extreme situations such as the application of boiling, or near boiling water over extended periods. Warning labels are prominently displayed on all water bottles.

3. Cigarette lighters

Two issues are apparent when addressing cigarette lighters; the production of novelty lighters and the lack of restriction on the purchase of lighters.

Recently a number of cigarette lighters have been manufactured in the shape of toys i.e. ducks, frogs (see below for example). The risk that children will use these products is heightened by their similarity to a toy.


Pictures 1 & 2 Examples of toy cigarette lighters

An interim 18 month ban has been placed on these products due to their hazardous nature. Whilst this is a good step, the ban needs to be made permanent.

The other issue with cigarette lighters is their ready availability for anyone to purchase. Although cigarettes and smoking products have age limits on purchasing this does not extend to cigarette lighters or matches. Many accidents occur when children and young adolescents have ready access to lighters and matches.

Recommendation:
A review of the age limit for smoking products and an extension for the restriction to products for lighting them such as lighters and matches should be undertaken.

4. Fireworks

Australian states have instigated bans on the sale of fireworks, however their territorial counterpart have not yet mandated a similar ban. There has been recent work on banning fireworks in both ACT and Northern Territory. This needs to be supported to reduce the number of burn injuries (van den Boogaard et al 2008).

Recommendation:
A Federal Government ban on all firework sales to the general public in all states and territories of Australia. Small fireworks (such as sparklers) have restrictions placed on the number of packets purchased, or the age of the purchaser (similar to tobacco sales).

5. Electrical Switchboards

An increasing number of burn injuries have recently occurred due to electrical switchboards. Most occur when electricians fail to isolate the power to the busbars (wide copper strips inside the switchboard which convey 415V alternating current). There is limited legislation on these products; however as these injuries continue to occur this suggests education and safety equipment requires further attention.

Recommendation:
Safety switch legislation is reviewed to ascertain what is required to increase safety and reduce fire and burn injury. Mandatory safety equipment usage is introduced.

6. Domestic treadmills

Recently there has been a great deal of work into the regulation of domestic treadmills in an attempt to curb the number hospitalisations due to friction burns. Burns have been occurring when young children crawl up behind the machine and place their hand onto the rotating belt. These actions result in devastating injuries to small bodies which require skin grafting and long term scar and functional management (Jeremijenko et al 2009, Kim et al 2009, Wong et al 2007).

The regulation dictates that all new treadmills must bear a warning label stating ‘Keep young children away from this machine at all times. Contact with the moving surface may result in severe friction burns’. However this does not affect any treadmills that were purchased before the regulation was enacted June 1 2009.

In addition to the availability of treadmills as exercise equipment, there has also been a toy treadmill which is now available for purchase for young children. The

packaging of these toys do show the warning label from the regulation, however packaging is discarded quickly after purchase. This toy, whilst not motorised itself, can provide children with the idea that treadmills are toys and are safe to be used by children. This product may lead to an escalation in friction burn injuries caused by domestic treadmills.

Picture 3 Example of toy treadmill

Recommendation:
National community education and awareness campaign be conducted highlighting the risks of treadmills. Review of adherence to legislation regarding warning labels and provision of factsheets to accompany all treadmills. Mandatory design standards which preclude entrapments for children's fingers and a requirement for a rear roller guard to prevent against limb entrapment. Enforcement of the Standard which prohibits the importation or sale of treadmills that do not meet the standard.
Mandatory warning label displayed on product, not just packaging of all approved toy treadmills.

7. Availability of flammable liquids

The misuse of flammable liquids has been responsible for many fires. These fires often occur when someone adds flammable liquids to fires to light them, or increase their size. Flammable liquids can include petrol, methylated spirits, kerosene, etc. These flammable liquids are available in most supermarkets, service stations and hardware stores and do not have age restrictions for purchase.

Recommendation:
A review of the purchase trends of petrol and other highly flammable liquids is conducted with the view of introducing restrictions such as an age limit on purchase of these products.

8. Flammable clothing labels – adults and children

The fire safety nature of children's nightwear has been legislated for many years however this does not extend to day wear or any adult clothing. Many clothing materials are highly flammable and may also melt and adhere to the skin if it comes in contact with a flame.

Recommendation:
To reduce the risk of clothing catching alight from close proximity to lit products such as fires, BBQs and candles we recommend all clothing have fire risk labels. Awareness campaigns that "Low Risk" clothing is still flammable, it just burns more slowly.

9. Campfire guards

Campfires are a common mechanism of burn injury, particularly in rural and remote Aboriginal and Torres Strait Islander communities. Serious burns have occurred by people falling into campfires or children walking over campfires after they appear extinguished.

Outdoor Fire Protection Devices (OFPD) have been developed to help prevent campfire burns whilst allowing traditional use of the campfire for cooking and heating. Recently an OFPD was supplied to a remote nursing home following a fatality of an elderly woman involving a campfire.

The Department of Health and Ageing acknowledged the dangers of campfire burns and engaged the Centre for Appropriate Technology to consult with Flexible Aged Care Facilities in the NT. This was to investigate the effectiveness of OFPD's and to develop other appropriate campfire burn prevention strategies. The outcome of these consultations suggests OFPD's are effective in conjunction with other strategies.

(Photo: Aboriginal and Torres Strait Islander Dementia News, Issue 6, July 2009)

Recommendation:
The issue of campfire burn injury is wider than aged care facilities; therefore ANZBA recommends these consultations be expanded to all Aboriginal and Torres Strait Islander communities at a national level.

State-based activities

Each of the Australian states, NT, and New Zealand are involved in burn prevention activities focusing on issues of concern for their area. Resources and activities are designed and developed to highlight the issues and provide prevention and first aid information.

Some states are also involved in school programmes which are aimed at prevention of burn injuries. These programmes also provide information on first aid management for when a burn occurs. Most of these school programmes are aimed at the primary school age children, and one is for high school students. The collaboration between all areas also allows for the sharing of ideas and resources. These programmes require federal support to enable them to be utilised nationally to prevent more burn injuries.

Conclusion

Burn injuries, no matter what the cause, can be devastating and have major life long complications. When occurring in young children they often leave scars that do not grow with the child and require frequent surgery for the child to develop normally. When occurring in the elderly they can become fatal especially when other pre-existing conditions affect their health.

Burn injury prevention is a major challenge. Any changes or new strategies introduced may not show obvious beneficial effects for a number of years. However, as burns are almost entirely preventable injuries, it is essential to address all aspects of prevention, from education to legislative changes, to reduce their occurrence.

A great deal of resources, both staff and funding, is required for the work of prevention. Even though these prevention initiatives are developed, often due to donated funds, the distribution can be problematic or sporadic and is not sustainable. A co-ordinated national delivery of intervention initiatives is achievable with Federal support. By acquiring Federal Government support and funding it is hoped to enable ease of distribution and dissemination. It is also imperative to assess the effectiveness of these prevention initiatives.

This submission has been compiled by the ANZBA Burn Prevention Committee. Membership of committee is as follows;

NSW	Siobhan Connolly (Chair)
Tas	Carolyn Hynes (Deputy Chair)
NT	Alison Mustapha OAM
NZ	Debbie Murray
Qld	Belinda Wallis
SA	Linda Quinn
Vic	Yvonne Singer
WA	Fiona Wood AM
Nat	Deb Bates (Julian Burton Burns Trust)
SA	Kurt Towers (Burns SA Aboriginal Burns Program)

We appreciate the Federal Government providing us with the opportunity to address the issue of burn prevention. By conducting the roundtable discussion into burn prevention on 1 February 2010 burn prevention has been highlighted as an issue for attention.

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