The extent of burn injuries in Australia

What are burn injuries?

2.1 According to the World Health Organisation (WHO):

> A burn injury of the skin occurs when some or all the different layers of cells in the skin are destroyed by a hot liquid (scalds), a hot solid (contact burns), or a flame (flame burns). Injuries of the skin and other tissues due to ultraviolet/infrared radiation, radioactivity, electricity, or chemicals are also considered to be burns.[1]

2.2 The skin is the body's largest organ and is made up of three layers; the epidermis, the dermis and the subcutis. These layers work together to:

> … act as a waterproof, insulating shield, guarding the body against extremes of temperature, damaging sunlight, and harmful chemicals. It also exudes antibacterial substances that prevent infection and manufactures vitamin D for converting calcium into healthy bones. Skin additionally is a huge sensor packed with nerves for keeping the brain in touch with the outside world. At the same time, skin allows us free movement, proving itself an amazingly versatile organ.[2]

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1 World Health Organisation (WHO), *Facts about injuries: Burns*, accessed from http://www.ameriburn.org/WHO-ISBIBurnFactsheet.pdf on 19 February 2010.

2 National Geographic, *Skin*, accessed from http://science.nationalgeographic.com/science/health-and-human-body/human-body/skin-article.html on 19 February 2010.

2.3 A burn to the skin can be relatively minor or result in life threatening complications depending on the severity of the burn. Burns are categorised according to the extent of damage to the skin. There are three levels of burns:

- **Superficial** – (also known as first degree burns) cause damage to the first or top layer of skin. The burn site will be red and painful.
- **Partial thickness** – (also known as second degree burns) includes damage to the first or second skin layers. The burn site will be red, peeling, blistering and swelling with clear or yellow-coloured fluid leaking from the skin, and is very painful.
- **Full thickness** – (also known as third degree burns) involves damage to both the first and second layers, plus the underlying tissues, muscle, bone and organs. The burn site generally appears black or charred with white exposed fatty tissue or bone. The nerve endings are generally destroyed so there is little or no pain experienced at the site of the full thickness burn but surrounding partial thickness burns will be very painful.[3]

2.4 Another important classification for a burn injury is the total body surface area (TBSA) which is affected. Generally a burn to greater than 10 per cent TBSA is classified as a major burn.[4] The Australian and New Zealand Burn Association (ANZBA) recommends referral to a specialist burns unit based on the following criteria:

- burns greater than 10 per cent of TBSA;
- burns of special areas—face, hands, feet, genitalia, perineum, and major joints;
- full thickness burns greater than 5 per cent of TBSA;
- electrical burns;
- chemical burns;
- burns with an associated inhalation injury;
- circumferential burns of the limbs or chest;
- burns in the very young or very old;

3 Better Health Channel, *Fact sheet: Burns*, accessed from http://www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Burns on 19 February 2010.

4 Submission No. 1, Australian Government Department of Health and Ageing (DoHA), p 3.

- burns in people with pre-existing medical disorders that could complicate management, prolong recovery, or increase mortality; and
- burns with associated trauma.[5]

Who is affected?

2.5 According to research published by the Australian Institute for Health and Welfare (AIHW) National Injury Surveillance Unit (NISU) approximately 46,661 people were hospitalised as a result of a burn or scald related injury in the period 1999-00 to 2003-04.[6] Data for the ten year period from 1998-99 to 2007-08 shows that there were almost 74,000 hospital separations[7] where the principal diagnosis was a burn or burn injury.[8]

2.6 Young children, males and older people form a disproportionately large segment of the total number of Australians affected by burn injuries.[9] A submission to the inquiry stated that 10 per cent of annual admissions to the Burns Unit at the Royal Adelaide Hospital are the result of workplace injuries with burns being prevalent in the hospitality industry and large heavy industries.[10]

2.7 The committee heard concerns about the significantly high numbers of Aboriginal and Torres Strait Islander people affected by severe burn injury. Mr Kurt Towers from the Burns South Australia Aboriginal Burns Program told the committee that:

> … Aboriginal people do sustain 25 times the rates of severe burn injury of non-Aboriginal people. Between 2003 and 2008, Aboriginal children represented 73 per cent of the burn admissions of people with over 40 per cent of total burn surface

5 Australian and New Zealand Burn Association (ANZBA), *Criteria for specialised burns treatment*, accessed from http://www.anzba.org.au/index.php?option=com_content&view=article&id=51&Itemid=58 on 22 February 2010.

6 Submission No. 1, DoHA, p 5.

7 A hospital separation is an episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). Admitted patients who receive same day procedures (for example, renal dialysis) are included in separation statistics. Source: Steering Committee for the Review of Government Service Provision, *Report on Government Services 2010*, Productivity Commission, p 10.3.

8 Singer, A., DoHA, Transcript, p 3.

9 Submission No. 1, DoHA, p 5.

10 Julian Burton Burns Trust, Submission 2.1, p 1.

> area. Burns are often more severe due to poor first aid response in the community or delayed referral to a burns centre.[11]

Do we know the true extent of burn injuries?

2.8 The committee heard compelling evidence from Professor Kimble, who appeared on behalf of St John Ambulance Australia, about the number of children that were affected by burns in Queensland in 2007. In that year 174 children under the age of 16 were admitted to hospital for 24 hours or more to receive treatment.

2.9 However, many witnesses raised concerns about the adequacy of relying on admissions data to determine the number of people who are affected by burn injuries. Professor Kimble stated that the Royal Children's Hospital treated 650 new burns patients in 2007 but only 74 of those were admitted to hospital for more than 24 hours. That means that only 11 per cent of burns patients were actually admitted. Professor Kimble added that if this rate of admission held for all 31 hospitals that treated children with burns in Queensland, then almost 1,500 children would have presented at hospital with new burns in 2007.[12]

2.10 If these figures reflect a trend across Australia, it could indicate that there is an underreporting of the extent of burn injuries in Australia, as hospital admission figures may significantly underestimate the number of people affected by burn injuries.

2.11 Mrs Petrys, on behalf of the Council on the Ageing (COTA) stated that her organisation believes that the data on the extent of burn injury amongst the older population is significantly under-represented.[13]

2.12 Concern about the inadequacy of the data was reiterated by the President of ANZBA, Mrs Sheila Kavanagh, who stated that:

> The other thing that we do not know is the true extent of injury across society. We see the high end, the high cost, but we do not see the smaller numbers who get smaller burns who are treated locally…[14]

2.13 In an attempt to get a clearer picture of the number of burns survivors who are treated locally, the committee sought additional information about the number of treatments or cost of treating burns survivors locally

11 Towers, K., Burns South Australia Aboriginal Burns Program, Transcript, p 11.

12 Kimble, R., St John Ambulance Australia, Transcript, p 11.

13 Petrys, D., Council on the Ageing (COTA), Transcript, p 6.

14 Kavanagh, S., ANZBA, Transcript, p 9.

through a General Practitioner. The Medicare Benefits Schedule data from the Department of Health and Ageing indicates that MBS number 30003,[15] which can be utilised by General Practitioners to treat burn injuries, was utilised 7,455 times nationwide at a cost of $207,626 in the 2007/2008 financial year. [16]

2.14 However, these MBS numbers may not provide a clear idea of the number of people who suffer from burn injuries in Australia.

> There are MBS items in relation to burns treatment, though most of it is more at the burns surgical end rather than the kinds of treatments that GPs were doing. I did ask for that data but, unfortunately, it has not become available in time.[17]

2.15 Issues relating to the need for better data gathering are discussed in detail in chapter three.

Causes of and treatments for burn injuries

2.16 There are a number of causes of burn injuries including:

- hot fluids such as food stuffs, oils and water;
- highly flammable materials;
- fires such as of motor vehicles, buildings, barbeques and bushfires;
- contact with hot objects or machinery;
- electrical current;
- explosions; and
- chemicals such as caustic acids, alkalis and hydrocarbons.[18]

2.17 The diversity of causes and differences in severity mean that there are a number of different treatments for burn injuries. These include cooling the burnt area with cold water, removing blisters and cleaning the burnt area, pain relief, application of specialised dressings, emergency and skin graft

15 MBS number 30003: LOCALISED BURNS, dressing of, (not involving grafting) each attendance at which the procedure is performed, including any associated consultation, accessed from http://www9.health.gov.au//mbs/search.cfm?q=30003&sopt=I on 07 July 2010.

16 Supplementary Submission No 1.1, DoHA.

17 Singer, A., DoHA, Transcript, p 38.

18 Submission No. 1, DoHA, p 2.

surgery and long-term rehabilitation treatment provided by psychologists, physiotherapists, dieticians and occupational therapists.[19]

Costs associated with burn injuries

Financial costs

2.18 The committee sought to understand the financial costs of treating a typical burns patient. Professor Maitz used an example of treating an adult with a burn injury to 50 per cent of the TBSA and that it was estimated it would cost more than $700 000 to treat this single patient.[20]

2.19 Evidence presented to the committee stated that in the 2007-08 financial year, the cost of burns and burn injury separations was $65 million.[21] However, Professor Maitz drew the committee's attention to data published by the British Burns Association that:

> … states that the true cost of a burn injury is hidden in one-third of the acute hospital cost and two-thirds in rehabilitation and loss of income. If we were to accept the cost of $65 million per year then that would be one-third of the true cost.[22]

2.20 A significant financial cost is accrued through the need for long-term ongoing rehabilitation including physiotherapy, massage and counselling. For example, Mr Julian Burton told the committee that he has massage and physiotherapy every fortnight to increase the flexibility of his skin.[23] However, this is not available to all patients, as Mrs Terri Scroggie, the mother of burns survivors, informed the committee:

> I cannot afford that for my daughters. I do not have the money to give the girls the massages that they need … I cannot afford the proper things to help her out – such as for her to be massaged – because it is not covered. I cannot give them what they need.[24]

2.21 The ongoing financial costs are compounded for families because it is often the case that some members of the family will have to leave their

19 Submission No. 1, DoHA, pp 3-4.
20 Maitz, P., Julian Burton Burns Trust, Transcript, p 6.
21 Singer, A., DoHA, Transcript, p 4.
22 Maitz, P., Julian Burton Burns Trust, Transcript, p 6.
23 Burton, J., Julian Burton Burns Trust, Transcript, p 17.
24 Scroggie, T., Private capacity, Transcript, p 18.

jobs, either as a result of their own burns or to care for burns survivors.[25] This means that the family income can decrease at the same time as treatment costs increase.

2.22 An important element of burn injury treatment that was presented to the committee is the consideration that burns are equivalent to a chronic disease. Treatment of burns is not a one off intervention. Surviving burn injuries involves a lifetime of ongoing treatment and rehabilitation.[26] It stands to reason that this lifelong treatment regimen incurs significant ongoing costs — beyond those of the first presentation and emergency treatment in hospital.

Social costs

2.23 However, this committee is not concerned simply with the significant financial cost of burn injuries — both to the health system and to the individuals and their families. Burn injury carries with it a significant social cost that impacts on the family, the survivor and the community.

2.24 The committee acknowledges the evidence of Mrs Terri Scroggie whose two children had suffered severe burn injuries. She emphasised:

> ... it is not just the ones who survive the burns but a whole unit of people who are affected. My parents have also been affected. They had to leave their jobs and their home to come and look after the other children.[27]

2.25 A significant social cost of burn injuries is the impact on the mental well-being of the burns survivor as well as the immediate family. The committee heard that burns are "emotionally shattering".[28] Mr Wayne Griffith, a burns survivor, told the committee that he withdrew after suffering his injury:

> I became very hermit-like and could not go out … If I had to do some shopping I would do it very early in the morning or very late at night so I did not have to meet people. I did not like people looking at me, because I had this second skin on.[29]

25 Burton, J., Julian Burton Burns Trust, Transcript, p 19 and McCartney, N., KIDS Foundation, Transcript, p 21.

26 Burtons, J., Julian Burton Burns Trust, Transcript, pp 17-18.

27 Scroggie, T., Private capacity, Transcript, p 8.

28 Burton, J., Julian Burton Burns Trust, Trancript, p 8.

29 Griffith, W., Private capacity, Transcript, p 8.

2.26 And this psychological impact extends to the nurses and doctors who are treating burns patients too. Mrs Sheila Kavanagh from ANZBA told the committee that treating burns patients has a significant emotional impact on the nurses, therapists and clinicians.[30]

Conclusion

2.27 It is clear that the treatment of burn injuries involves a significant amount of expertise and ongoing care. Furthermore, burn injuries have an ongoing impact not only on the individual survivor but on their family, the health system and society as a whole. The committee agrees with the evidence of a number of witnesses at the public roundtable that more work must be done to prevent burn injuries in the first place. Ways to prevent or minimise burn injuries are discussed in greater detail in the next chapter.

30 Kavanagh, S., ANZBA, Transcript, p 9.