HOT WATER TEMPERATURE AND SCALD BURNS POLICY

The Public Health Association of Australia notes that:

1. The estimated cost to hospitals due to admitted cases of burn and scald injuries in Australia for 1999–00 was $40.2 million.[1]

2. Approximately 46, 611 people were hospitalised as a result of burn or scald-related injury during the 5-year period 1999–00 to 2003–04. [2]

3. The injury data highlights population groups with special vulnerability. Three groups are at particular risk:

    - young children aged 4 years and under. For infants aged 1 year or less, 84% of the burns and scalds injuries occurred between the ages 7–12 months. [2]
    - males aged 15–19 and 20–24, accounting for 15% of the burn and scalds related injuries sustained by males. This distinctive age profile is particularly noticeable for injuries resulting from exposure to *highly flammable material* (e.g. petrol), with males accounting for 88% of these hospitalisations. [2]
    - older people, with burns and scalds involving hot tap water and other fluids rising with age after 70 years, representing 24% of burn hospitalisations for those aged 70-74, and increasing to 40% for those aged 85 years and over. [2]

4. Burns may occur through a variety of mechanisms including direct exposure to heat (flames, heated elements/ objects, hot liquid, steam) as well as radiant heat (sunburn), chemical/ caustic agents and friction.

5. 24% of the hospital admissions are for full thickness burns, with 96% of those affecting a body surface area of less than 10%. Most (69%) of burns and scalds result in a hospital stay of from 1 to 3 days, more than half (57%) involving a stay of 1 day or less.

6. Over 90% of hot tap-water burns requiring admission to hospital occur in the bathroom, primarily from immersion in baths containing water heated to unsafe temperatures or as a result of young children turning on hot taps whilst bathing. [3]

7. The majority of burns and scalds (males 95%; females 92%) referred to non-intentional (i.e. accidental) events, involving contact with hot water or other hot fluids, or with fire, burning objects, or hot objects.

8. The higher the water temperatures the greater the risk of producing a full thickness scald burn. Water at 65ºC produces a full thickness burn in less than a second of exposure, at 60ºC in around five seconds, and at 55ºC, in around thirty seconds. With water at 50ºC, five minutes exposure would be required to produce full thickness burns.[4] Most domestic storage hot water heaters in Australia are installed to store water at or above temperatures of 65ºC.

The Public Health Association of Australia supports the view that:

9. Reducing the incidence of burns and scalds requires a broad approach, including maintaining legislature regulating sleepwear standards, improvements in domestic heating practices, changes to regulations and standards for the delivery temperature of hot tap water, community promotion on storage of flammable liquids. [5.6]

10. Decreasing the temperature of hot water delivered to bathing areas is an effective preventive mechanism and that lowering temperatures to 50oC will significantly reduce the risk of scald burns to young children, older people and people with disabilities alike.

    The interventions available to achieve maximum temperatures of 50ºC in key risk areas include: lowering the temperature of stored water by altering the thermostat setting while insuring that the temperature does not contribute to the growth of harmful bacteria in the water; installing tempering valves; installing thermostatic mixing valves; and using end-of-line devices that shut off water flow above a set temperature. The appropriateness of these options vary according to whether the hot water systems to be controlled are new or existing systems, and according to the nature of the heating mechanism (electric, gas, solar, off-peak, fixed element, wood-fired etc).

    The relevant Australian and New Zealand Standards (AS 3500.4 -1994 & AS/NZS 3500.4.2:1997) were amended to require temperature control on newly installed hot water systems to reduce the temperature of the hot water delivered at the bathroom to 50 degrees.

11. The control of existing systems continues to be a major concern, particularly as many systems are not adjustable by consumers, they may lack specific temperature calibrations, hot water run-out may cause consumer resistance, and temperatures below 50oC may encourage the growth of Legionella bacteria.

The Public Health Association of Australia resolves that:

12. The Executive and Branches, advised by the Injury Prevention Special Interest Group, will advocate policy and legislative changes to control domestic hot water system temperatures in public housing, and that the current regulations that cover the control of hot water delivery in aged and child care facilities and where major renovations are occurring, are implemented.

13. The Executive and Branches, advised by the Injury Prevention Special Interest Group, will encourage state/territory legislatures to legislate to ensure that all hot water gets delivered at 50 degrees to bathrooms and insure that those with least resources are assisted to upgrade their hot water facilities.

14. The Executive and branches, advised by the Injury Prevention Special Interest Group, will advocate for collaborative efforts between health authorities, local governments, and trade and industry groups, to deliver local information/awareness raising campaigns on the dangers of hot water, and the important role of supervision of both children and the frail aged in the bath/shower environment.

References:

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2. Burns and Scalds. Harrison, J & Steel, D. October 2006. National Injury Surveillance Unit

3. NSW Health, Hot water burns like fire, The NSW scalds prevention campaign, Phases one and two 1992-1994. Final report - December 1998.

4. Moritz,A,R; Henriques,F.C Jnr, Studies of thermal injury:2. The relative importance of time and surface temperature in the causation of cutaneous burns; Am. J. Path, 1947, pages 695-720.

5. Streeton C & Nolan T (1997) Reduction in paediatric burn admissions over 25 years, 1970-1994. Injury Prevention (3): 104-109

6. Henderson P, McConville H, Hohlriegel N etal (2003) Flammable liquid burns in children. Burns (29):349-52

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