



Practice Alert

Hot water safety

February 2022

Key points

- Hot water can cause scalding burns within seconds without an installed temperature control device
- Scalding most often occurs in the bathroom and can result in infection and even death
- People with disability are among those most at risk of scalding
- If severe scalding occurs, apply first aid and call an ambulance
- The risk of scalding from hot water can be reduced by:
 - Ensuring devices that limit hot water temperature are installed and maintained in line with the Australian Standards
 - Always running the cold water into the bath or shower first before the hot water
 - Always checking the temperature of the bath or shower before a participant enters the water

Importance of hot water safety:

Very hot liquids or steam can cause a type of burn called a scald (HealthDirect 2021; WHO 2018).

Scalding is the second highest cause of burns apart from fire (Burns Registry of ANZ 2021) and is a preventable injury that can lead to scarring, painful treatment, infection and death (Forbinake 2020; PHAA 2012).

More than 90% of scalding occurs in the bathroom from showers or baths that are too hot (PHAA 2012; Victorian building authority 2022).

At a water temperature of 50°C it can take five minutes to scald the skin and at 68°C it can take only one second to cause third-degree burns (Queensland Government 2020; VBA 2022).

The more deeply the skin is harmed, the more serious the health consequences:

- **First-degree burns** are superficial burns and affect only the outer layer of the skin (e.g. sunburn).
- **Second-degree burns** look red, blistered, wet, swollen and are often painful (Worksafe Queensland 2022). These scalds are at risk of infection.
- **Third-degree burns** destroy the outer and inner layer of the skin and may also damage muscles, tendons and ligaments. Third-degree burns may require skin grafts, surgeries, and extensive hospitalisation. People with third-degree burns are at increased risk of infection and sepsis, which can lead to organ failure and death (Sepsis Alliance 2022).

Who is most at risk of scalding?

The risk of scalding is greater for people who may have a reduced reaction time and/or thinner skin thickness. This includes:

- People with cognitive or physical disabilities including dementia (ABCB 2015; HSE 2012; Mezei 2004)
- People with peripheral neuropathy (WHO 2018)
- People with epilepsy
- People with a sensory impairment (HSE 2012)
- Young children (ABCB 2015; FACS 2019)
- Older people or those with reduced mobility (ABCB 2015; Harvey 2016; HSE 2012)

What to do if scalding occurs:

- Apply cool running water to the site of the scald for 20 minutes (Royal Children's Hospital 2021)
- Do not touch the burn
- Do not apply any lotions or ice to the area
- Remove any clothing or jewellery near the scald (ACI 2019; HealthDirect 2021; St John Ambulance 2020)

Call an ambulance if:

- The burn/scald is larger than a 20 cent piece
- The burn is deep
- The burn has blisters, pus or discharge (Sepsis Alliance 2022)
- The skin appears leathery
- The burn is to the face, airways, hands or genitals
- There are patches of brown, black or white
- The person also has a fever (Sepsis Alliance 2022)
- The person is having trouble breathing (ACI 2019; HealthDirect 2021; Royal Children's Hospital 2021)

Preventing scalds: hot water standards

Because of the risks of hot water to staff and participants, the [Australian Standards](#) now have regulations for new hot water installations in facilities where people with disability receive services (AS3500.4 1.11). The maximum recommended water temperature at fixtures used primarily for personal hygiene purposes is 45°C (Australian Standards 2018), which is the maximum temperature before scalding becomes a serious risk to staff and participants (Queensland Government 2020; South Australian Government 2020).

Temperature control devices

Temperature control devices such as thermostatic mixing valves (TMV) or tempering valves control the output temperature of the water at the tap and can be set to the recommended maximum of 45°C (South Australian Government 2020). Hot water is normally stored at higher temperatures (above 60°C) to avoid certain bacteria (especially Legionella) contaminating the water (ABCB 2015). TMVs or tempering valves reduce the output temperature at the tap, thereby reducing the risk of serious burns (PHAA 2012; Queensland Government 2020).

To reduce the risk of scalding, providers of Specialist Disability Accommodation should:

- Ensure that all **new** heated water installations use a thermostatic mixing valve or thermostatically controlled tap to deliver hot water not exceeding 45°C at fixtures used primarily for personal hygiene purposes (Australian Standards 2018, AS3500.4 1.11)
- For **older** heated water installations, consider installing a temperature control device such as a thermostatic mixing valve set to a maximum of 45°C (Queensland Government 1999; South Australian Government 2020; Western Australian Government 2019; WHO 2018)
- Engage a licenced plumber to test and maintain any temperature control devices at least on a yearly basis (ABCB 2015)
- Ensure bathroom fixtures such as shower heads limit maximum water flow (Victorian Government 2000).

Preventing scalds when supporting participants:

All providers can reduce the risk of scalds in the bathroom by:

- Always running the cold water in the bath or shower first before the hot water (Epilepsy Action Australia 2020; FACS 2019)
- Always checking the temperature of the bath, shower or other hot water before a participant enters the water
- Not leaving the plug in while a participant showers, if the shower is a combined bath and shower.

Provider Obligations

NDIS Code of Conduct

NDIS providers and workers must comply with the [NDIS Code of Conduct](#) when providing supports or services to NDIS participants.

The NDIS Code of Conduct requires all NDIS providers and workers who provide NDIS supports or services to NDIS participants to, among other things:

- provide supports and services in a safe and competent manner with care and skill; and
- promptly take steps to raise and act on concerns about matters that may impact the quality and safety of supports and services provided to people with disability.

NDIS Practice Standards

If you are a registered NDIS provider, you must comply with the [NDIS Practice Standards](#) as part of your conditions of registration. The NDIS Practice Standards relate to the delivery of safe, quality supports and services, and the management of risks associated with the supports you provide to NDIS participants.

The NDIS Commission's guidance on the [NDIS Practice Standards and Quality Indicators](#) provides a further resource to assist registered NDIS providers to understand their obligations.

The NDIS Practice Standards that are most relevant to this alert include:

- **Risk Management:** Risks to the organisation, including risks to participants, financial and work health and safety risks, and risks associated with provision of supports are identified, analysed, prioritised and treated.
- **Incident Management:** Each participant is safeguarded by the provider's incident management system, ensuring that incidents are acknowledged, responded to, well-managed and learned from.
- **Emergency and disaster Management:** Emergency and disaster management includes planning that ensures that the risks to the health, safety and wellbeing of participants that may arise in an emergency or disaster are considered and mitigated, and ensures the continuity of supports critical to the health, safety and wellbeing of participants in an emergency or disaster.

Resources

[UNSW Sydney: Consumer Factsheet - Hot water safety in bathrooms](#)

[The Royal Children's Hospital Melbourne: Burns - prevention and first aid](#)

[Victorian Building Authority: Hot water safety](#)

[Victorian Government Department of Health: Burns and scalds - children](#)

References

- Agency for Clinical Innovation (NSW Health) 2019. Burn patient management. https://www.aci.health.nsw.gov.au/_data/assets/pdf_file/0009/250020/Burn-patient-management-guidelines.pdf
- Australian Building Codes Board (ABCB) 2015. Plumbing code development research report: warm water systems. <https://www.abcb.gov.au/sites/default/files/resources/2020/Report-Warm-Water.pdf>
- Australian Standards 2018. AS 3500.4 (1.11) Plumbing and drainage Part 4: heated water services sanitary fixtures delivery temperature <https://store.standards.org.au/reader/as-nzs-3500-4-2018?preview=1>
- Burns Registry of Australia and New Zealand 2021. Annual report 2019/20. Department of epidemiology and preventative medicine, Monash University. https://anzba.org.au/assets/BRANZ_AnnualReport_Jul19-Jun20.pdf
- Epilepsy Action Australia (2020). Seizures, safety and injury. https://www.epilepsy.org.au/epilepsy-and-risk_seizures-and-injury/
- Forbinake N, Ohandza C, Fai K, Agbor V, Asonglefac B, Aroke D. 2020. Mortality analysis of burns in a developing country: a Cameroonian experience. BMC public health, 20 (1): 1269. Doi 10.1186/s12889-020-09372-3
- Harvey L, Mitchell R, Brodaty H, Close J. 2016. Dementia: a risk factor for burns in the elderly. Burns, 42(2): 282-90. Doi 10.1016/j.burns.2015.10.023
- Health and Safety Executive 2012. Managing the risks from hot water and surfaces in health and social care. <https://www.hse.gov.uk/pubns/hsis6.pdf>
- Health Direct 2021. Burns and scalds. <https://www.healthdirect.gov.au/burns-and-scalds#what-is>
- Mezei R, Stanwick R. 2004. Hot tap water scalds prevention: a case for the power of public health partnerships in affecting regulatory change. Pediatric and child health, 9(3): 153-55.
- NSW Government 2019 Family and Community Services. Safety inside and outside the house. <https://www.facs.nsw.gov.au/families/parenting/keeping-children-safe/around-the-house/chapters/at-home>
- Public Health Association of Australia 2012. Policy at a glance – hot tap water temperature and scalds policy. <https://www.phaa.net.au/documents/item/1702#:~:text=Decreasing%20the%20temperature%20of%20hot,12.>
- Queensland Government 2020 – Requirements for installing temperature control devices – guideline under the plumbing and drainage Act 2018. https://www.hpw.qld.gov.au/_data/assets/pdf_file/0021/11379/installing-temperature-control-devices.pdf
- Queensland Government 1999. Design guidelines for Queensland residential aged care facilities. https://www.health.qld.gov.au/_data/assets/pdf_file/0025/151099/qh-gdl-374-8.pdf
- Sepsis Alliance 2022. <https://www.sepsis.org/sepsisand/burns/>
- South Australian Government 2020. Temperature of delivered heated water. https://www.sa.gov.au/_data/assets/pdf_file/0010/294652/200402-OTR-PAN-Temp-of-delivered-heated-water.pdf

St John Ambulance 2020. First aid fact sheet burn or scald.

https://stjohn.org.au/assets/uploads/fact%20sheets/english/Fact%20sheets_burn%20or%20scald.pdf

Victorian Building Authority (VBA) 2022. Hot water safety.

<https://www.vba.vic.gov.au/consumers/guides/hot-water-safety>

Victorian Government 2000. Aged care residential services generic brief.

<https://www.priorityhealthcare.com.au/files/Victorian%20Government%20Aged%20Care%20Brief.pdf>

Western Australian Government 2019. Department of mines, industry regulation and safety building and energy. Decision regulatory impact statement – reforms to plumbing regulation in Western Australia.

https://www.commerce.wa.gov.au/sites/default/files/atoms/files/plumbers_dris_2019.pdf

Worksafe Queensland 2022. Burns and scalds. <https://www.worksafe.qld.gov.au/safety-and-prevention/hazards/workplace-hazards/dangers-in-your-workplace/burns-and-scalds>

World Health Organisation 2018. Burns. <https://www.who.int/news-room/fact-sheets/detail/burns>

World Health Organisation 2007. Management of burns.

https://www.who.int/surgery/publications/Burns_management.pdf

General enquiries

Call: 1800 035 544 (free call from landlines). Our contact centre is open 9.00am to 5.00pm (9.00am to 4.30pm in the NT) Monday to Friday, excluding public holidays.

Email: contactcentre@ndiscommission.gov.au

Website: www.ndiscommission.gov.au