



Queensland Health

# Heatwave Management Sub-plan

Sub-plan of the QHDISPLAN



Queensland  
Government



The Department of Health acknowledges the Traditional Owners and Custodians of the lands, waters and seas across the State of Queensland and pays our respects to the Elders past and present. We value the culture, traditions, and contributions that the Aboriginal and Torres Strait Islander peoples have made to our communities and recognise that our collective responsibility as government, communities and individuals are to ensure equity and equality, recognition, and advancement of Aboriginal and Torres Strait Islander peoples in Queensland in every aspect of our society. Aboriginal and Torres Strait Islander peoples are advised that this publication may contain the names and/or images of deceased people.

## Heatwave Management Sub-plan - Sub-plan of the QHDISPLAN

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# Snapshot: Heatwave Management Sub-plan

*This snapshot is a summary of the Queensland Health Heatwave Management Sub-plan. Further details are provided throughout this sub-plan*

## Authority

The Queensland Health Heatwave Management Sub-plan is issued under the authority of the Director-General and is a sub-plan of the Queensland Health Disaster and Emergency Incident Plan.

The sub-plan is also a hazard-specific plan of the Queensland State Disaster Management Plan.

## Primary agency for heatwaves

Queensland Health is the primary agency responsible for the hazard of heatwave.

The sub-plan articulates the roles and responsibilities of Queensland Health and other stakeholder agencies in line with Queensland's disaster management arrangements.

See Section 5.

## Heatwave risks and impacts in Queensland

Health risks and impacts are outlined in Section 4 and Appendix 2.

In addition to health impacts, a heatwave may cause impacts to other sectors, including damage to critical infrastructure and utilities that may have broader community and social impacts.

An overview of cross-sector impacts is provided in Section 4, outlining key considerations from the Queensland State Heatwave Risk Assessment.

## The Bureau of Meteorology

The Bureau's Heatwave Service generally operates between the start of October and the end of March and provides information about heatwave severity, including a seven-day heatwave forecast available to the public.

## Communications Protocol

The Bureau delivers heatwave warnings that highlight expected weather conditions. Queensland Health is responsible for broadcasting heat health warnings to communities and stakeholders within Queensland.

Section 7 of the sub-plan is the embedded Communications Protocol and does not require the activation of the sub-plan. Queensland Health will follow the Protocol as business-as-usual during the Bureau's Heatwave Service period, with both internal and external stakeholders.

The Communications Protocol outlines the:

- approach to all levels of heatwave severity in Queensland
- importance of broader education and engagement campaigns (alongside warnings) relating to heat risk, including the:
  - promotion of places of cool refuge
  - need for support to vulnerable groups
- importance of effective communications from both health and non-health stakeholders.

## Bureau definitions

**Heatwaves:** are when the maximum and the minimum temperatures are unusually hot over a three-day period at a location. This is considered in relation to the local climate and past weather at the location.

**Excess Heat Factor (EHF):** Is a metric used to forecast heatwave intensity, comparing temperatures forecast to both actual temperatures over the previous 30 days and the 'normal' temperatures expected for that location based on past records.

Heatwaves are classified into three types based on intensity:

- **Low-intensity** heatwaves are more frequent during summer. Most people can cope during these heatwaves.
- **Severe** heatwaves are less frequent and are likely to be more challenging for vulnerable people such as the elderly and those with medical conditions.
- **Extreme** heatwaves are rare and pose a risk for people who work or exercise outdoors and those who do not take precautions to keep cool regardless of personal health status.

Refer to Section 3.

## Activation

Triggers for activation of the sub-plan are outlined in Section 2.

Activation will occur at the discretion of the Director-General, or delegate and will automatically trigger activation of the QHDISPLAN to the same level.

# Authorisation statement

The Queensland Health Heatwave Management Sub-plan is issued under the authority of the Director-General and is a sub-plan of the Queensland Health Disaster and Emergency Incident Plan. The Sub-plan is also a hazard-specific plan of the Queensland State Disaster Management Plan.

## Review requirements

The Queensland Health Heatwave Management Sub-plan shall be reviewed:

1. Annually as a minor review, with amendments made based on potential impact and importance, otherwise a major review will be conducted every three years.
2. Following structural or organisational changes impacting Queensland Health operations.
3. Following legislative changes affecting Queensland Health operations.
4. Following changes in state or federal nomenclature or arrangements.
5. Following activation resulting in identified improvements, including through major exercises.

## Version control

This Queensland Health Heatwave Management Sub-plan will be updated electronically and available on the Queensland Health intranet and internet sites. The electronic copy is the master copy and is the copy recognised as being current.

To ensure currency, holders should insert amendments to the plan as soon as they are received. When an amendment is inserted into the plan, the amendment should be recorded in the schedule below.

Date	Amendment

# Contents

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<b>Snapshot: Heatwave Management Sub-plan</b>	<b>3</b>
<b>Authorisation statement</b>	<b>4</b>
<b>Review requirements</b>	<b>4</b>
<b>Version control</b>	<b>4</b>
<b>1 Introduction</b>	<b>7</b>
1.1 Authority	7
1.2 Aim and intent	7
1.3 Scope	7
1.4 Supporting documents	8
<b>2 Operation of the sub-plan</b>	<b>9</b>
2.1 Triggers for activation	9
<b>3 Understanding heatwaves</b>	<b>9</b>
3.1 The Heatwave Service	9
3.2 Definitions	10
3.3 Excess Heat Factor	11
<b>4 Heatwaves in Queensland</b>	<b>12</b>
4.1 Climate projections for Queensland	12
4.2 Health impacts	12
4.3 Cross-sector impacts	13
4.4 The Urban Heat Island Effect	14
<b>5 Roles and responsibilities</b>	<b>16</b>
5.1 Whole-of-government	16
5.1.1 High risk weather season and heatwave preparedness	17
5.2 Queensland Health	17
5.2.1 The Department of Health	17
5.2.2 Hospital and Health Services	18
5.2.3 The Queensland Ambulance Service	18
<b>6 Debriefing and lessons management</b>	<b>19</b>
<b>7 Communication Protocol</b>	<b>20</b>
7.1 Preparedness education and engagement	21
7.2 Bureau warnings	21
7.3 Queensland Health warnings	22
7.3.1 Internal roles and responsibilities	22
7.4 Local government	23
7.5 Supporting vulnerable groups	23
7.5.1 Health service providers and non-government organisations	23
7.5.2 Vulnerable groups	24

<b>Appendix 1: Vulnerable groups (cont.)</b>	<b>25</b>
<b>Appendix 2: Health impacts</b>	<b>27</b>
2.1 Clinical symptoms of a heatwave: heat illness	27
Clinical management of heat illness	27
2.2 Exposure	28
2.3 Sensitivity	28
2.4 Mental health impacts of a heatwave	31
Acute effects – direct mental health impact	31
Acute effects – increased vulnerability of those with mental health disorders	31
<b>Appendix 3: Heat preparedness for facilities</b>	<b>32</b>
<b>Appendix 4 - Guidance for General Practices</b>	<b>36</b>
<b>Abbreviations</b>	<b>38</b>

# 1 Introduction

## 1.1 Authority

The Queensland Health Heatwave Management Sub-plan (the sub-plan) is a sub-plan to the Queensland Health Disaster and Emergency Incident Plan (QHDISPLAN). This sub-plan is authorised by the Director-General, Queensland Health and activated under the authority of the State Health Coordinator, or as delegated by the Director-General, Queensland Health. These arrangements are described in the QHDISPLAN.

## 1.2 Aim and intent

The aim of the Queensland Health Heatwave Management Sub-plan is to:

- outline the context of heatwaves in Queensland, including health and non-health risks and impacts
- articulate the roles and responsibilities of the health sector and other stakeholder agencies in line with Queensland's disaster management arrangements<sup>1</sup>
- outline arrangements for preparedness, response, and recovery for heatwaves
- describe how heatwave notifications and information about heatwaves will be coordinated
- outline the triggers, impacts, and response activities for Queensland Health and other agencies
- support a cycle of ongoing evaluation that will continue to improve the capabilities of Queensland Health and other agencies to prepare for and respond to heatwaves.

## 1.3 Scope

In accordance with the Queensland State Disaster Management Plan (QSDMP), Queensland Health is the primary agency with responsibility for the hazard of heatwave. The sub-plan also serves as a hazard specific plan of the QSDMP.

The sub-plan is also aligned with the Bureau of Meteorology's (the Bureau) National Heatwave Warning Framework (the NHWF); which provides the foundation for a consistent approach to heat health and heatwave warnings across Australian states and territories. While heat health is the primary focus of the NHWF, it also notes that heatwaves adversely impact sectors such as water, energy, infrastructure, agriculture, and transport sectors<sup>2</sup>.

The sub-plan provides guidance to cross-sector partners and stakeholders as well as the health stakeholders.

The sub-plan applies to all areas of Queensland Health, including the Department and Hospital and Health Services (HHSs). HHSs may also maintain heatwave management plans or arrangements in line with the requirements of the QHDISPLAN.

Individual agency heatwave management plans, as well as local or district disaster management group plans, may be developed relevant to local needs and risk.

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<sup>1</sup> Queensland disaster management arrangements [Disaster Management - Queensland Government](#)

<sup>2</sup> National Heatwave Warning Framework

## 1.4 Supporting documents

The sub-plan is supported by the following documents:

### **Whole of Government**

- Queensland State Heatwave Risk Assessment (2019)
- Queensland Emergency Risk Management Framework
- Queensland State Disaster Management Plan
- Queensland Recovery Plan
- Queensland State Disaster Risk Report
- Queensland Strategy for Disaster Resilience 2022-2027
- Queensland Climate Adaptation Strategy 2017-2023
- The Long Paddock: heatwave case study

### **Queensland Health**

- Queensland Health Disaster and Emergency Incident Plan (QHDISPLAN)
- Birdie and the Very Hot Day: Queensland Health 'Birdies Series of Children's Resources and Storybooks'
- Heat communications stakeholder kit<sup>3</sup>

### **External**

- The National Heatwave Warning Framework
- The Bureau of Meteorology's Heatwave Service for Australia

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<sup>3</sup> Distributed to disaster management stakeholders and available on request

## 2 Operation of the sub-plan

### 2.1 Triggers for activation

Activation of a Queensland Health sub-plan will automatically trigger activation of the QHDISPLAN to the same level. The activation level of the QHDISPLAN and sub-plans are generally defined by the activities required in response to a disaster event or incident; however, there may be a need to undertake initial activities outside of formal activation.

For heatwaves, this will include the heatwave communications that is undertaken by Queensland Health throughout the Bureau's Heatwave Service – see Communications Protocol (section 7).

Activation decisions are made using a standard risk assessment of likelihood and impact. In accordance with the QHDISPLAN, this sub-plan may be activated<sup>4</sup>:

- at the request of a HHS where a heatwave is being monitored, is imminent and is expected to cause significant disruption
- if a request is made by an area of the Department where there is a reasonable belief that a heatwave has caused, or is likely to cause, significant impacts on health service delivery
- when a coordinated response to a heatwave is required across multiple HHS and stakeholders
- if the State Disaster Coordination Centre moves to 'Stand Up' level of activation, including reporting requirements in place
- at the discretion of the Director-General or delegate.

Activation of HHS plans does not necessarily result in activation of the QHDISPLAN or its sub-plans. Local heatwave response plans can be activated without activation of this sub-plan. It is suggested that activation of local plans or arrangements be considered for prolonged heatwaves with localised impacts.

## 3 Understanding heatwaves

### 3.1 The Heatwave Service

The Bureau's Heatwave Service<sup>5</sup> provides information about heatwave severity, including a national seven-day heatwave forecast available to the public.

Additionally, the Bureau's Heatwave Decision Support Product is available to health and emergency service agencies; including a geographically detailed seven-day forecast product aimed at supporting agency planning.

Under the Heatwave Service, the Bureau provides meteorological information, data, and forecasts in a uniform manner, using the Excess Heat Factor (EHF) as the metric for defining

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<sup>4</sup> Queensland Disaster and Emergency Incident Plan (2023)

<sup>5</sup> Generally operates between the start of October and the end of March each year: [Bureau of Meteorology Heatwave Service for Australia](#)

heatwaves. As outlined in the NHWF, the EHF is the nationally agreed metric for defining heatwaves (see section 3.3 below).

## 3.2 Definitions

**Heatwaves:** occur when the maximum and the minimum temperatures are unusually hot over a three-day period at a location. This is considered in relation to the local climate and past weather at the location<sup>6</sup>. Heatwaves are classified into three types based on intensity.

Minimum temperatures are included in the definition because, when night-time temperatures remain higher than usual, health risks increase as the temperature drop may not be sufficient for people who have been exposed to extreme heat all day to recover<sup>7</sup>.

Humidity is not calculated within the Bureau’s Excess Heat Factor however will be outlined in community warnings by the Bureau and can be a considerable factor in the impact of a heatwave.

The table below provides the heatwave severity levels colour, which is included in the Bureau’s heatwave forecast maps, as well as the Bureau’s definitions of each intensity.

Heatwave Type	Colour Code	Bureau of Meteorology definitions
No heatwave	White	
Low intensity heatwave	Yellow	<b>Low-intensity heatwaves</b> are more frequent during summer. Most people can cope during these heatwaves.
Severe intensity heatwave	Orange	<b>Severe heatwaves</b> are less frequent and are likely to be more challenging for vulnerable people such as the elderly, particularly those with medical conditions.
Extreme heatwave	Red	<b>Extreme heatwaves</b> are rare. They are a problem for people who do not take precautions to keep cool regardless of personal health status. People who work or exercise outdoors are also at greater risk of being affected.

Table 1: Heatwave severity definitions (the Bureau)

<sup>6</sup> [BoM Heatwave Warning Information Guide 2022](#)

<sup>7</sup> Healthline (2016) [Hot Summer Nights Can Be More Dangerous Than Days During Heat Waves](#)

## 3.3 Excess Heat Factor

The following outline of the Excess Heat Factor (EHF) is adapted from the Bureau's National Heatwave Warning Framework.

The EHF metric was developed in Australia and has been used since 2014 to monitor and forecast heatwave intensity. It is based on the need to measure both minimum and maximum temperatures to assess intensity, and provides an index of the combined effect of excess heat and heat stress.

Heatwaves are calculated using the forecast maximum and minimum temperatures for the next three days, compared with both actual temperatures over the previous 30 days and the 'normal' temperatures expected for that location based on past records.

The EHF considers people's ability to adapt to and recover from heat.

For example, the same high temperature will be felt differently by residents in Mt Isa compared with those in Brisbane, who may not be accustomed to the higher range of temperatures experienced in Mt Isa.

Similarly, if there has been a period of relatively cool weather in a location, then a sharp and sustained increase in temperature, this will show up in the heatwave forecast.

This means that in any one location, temperatures that meet the criteria for a heatwave at the end of summer will generally be hotter than the temperatures that meet it at the beginning of summer<sup>8</sup>.

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<sup>8</sup> Bureau of Meteorology [About The Heatwave Service](#)

# 4 Heatwaves in Queensland

## 4.1 Climate projections for Queensland

The Queensland State Heatwave Risk Assessment<sup>9</sup> (2019), alongside subsequent State Disaster Risk Reports, provides an assessment of risk and long-term climate projections for heatwaves using downscaled regional modelling undertaken by the Queensland Department of Environment and Science.

The Long Paddock<sup>10</sup>, Queensland Government, also includes heatwave climate models as part of the heatwave case study.

## 4.2 Health impacts

Heatwaves have taken more lives and caused more adverse health outcomes than any other natural hazard in Australia<sup>11</sup>.

The Queensland Department of Environment and Science (DES) commissioned James Cook University to deliver several research papers as part of a larger project collaboration with Queensland Health and Queensland Fire and Emergency Services.

The following is provided as an overview of papers to increase understanding of heatwave impacts on health and health services. NB: Forthcoming paper will include heatwave impacts on emergency department presentations and hospital admissions.

### **Determining the Impact of Heatwaves on Emergency Ambulance Calls in Queensland: A Retrospective Population-Based Study<sup>12</sup>**

- Statewide study of heatwave impacts on emergency ambulance calls between 2010 to 2019
- Risk of emergency ambulance calls was approximately 12% greater during heatwave days than non-heatwave days
- There was an inverse association between the relative risk of emergency ambulance calls and heatwave severity. This is likely due to risk perception and adaptive behaviours as follows:
  - 22% during low (EHF >0 to <1)
  - 14% during severe (EHF 1 to <3)
  - 1-2% during extreme (EHF 3+)

#### **Lag effects:**

- Lag peaked on days 2 and 3 following a heatwave, however the lag effect resulted in increased emergency ambulance calls for 10 days following a heatwave
- This could indicate that high temperature days following a heatwave did not meet the heatwave definition threshold, however still impacted health services

<sup>9</sup> [Queensland emergency risk management framework | Disaster Management | Queensland Government](#)

<sup>10</sup> [| LongPaddock | Queensland Government](#)

<sup>11</sup> [Handmer et al. 2016 and Department of Environment and Science adapted from McMichael et al 2003](#)

<sup>12</sup> Mason, H.M., King, J.C., Peden, A.E., Watt, K., Bosley, E., Fitzgerald, G., Nairn, J., Miller, L., Mandalios, N. and Franklin, R.C., 2023. [Determining the Impact of Heatwaves on Emergency Ambulance Calls in Queensland: A Retrospective Population-Based Study](#). International journal of environmental research and public health, 20(6), p.4875

- The study noted results were similar to other studies in Australia:
  - Brisbane study for the period 2007-2011: an 18% increase in ambulance attendances
  - During a 2021 heatwave in Sydney: a 14% increase in ambulance attendances
  - During 2008-2009 heatwaves in Adelaide: a 10-16% increase in ambulance attendances

### Heatwaves and mortality in Queensland 2010–2019: implications for a homogenous state-wide approach<sup>13</sup>

Heatwaves were associated with a 5% increase in all-cause mortality compared to deaths on non-heatwave days, with variability across the state.

#### Heatwaves and rurality:

- Individuals living in major cities in Queensland experienced the highest increased risk of mortality during heatwaves

#### Heatwaves and medical conditions:

- Those with *respiratory* and *mental and behavioural* conditions were more likely to have been impacted by heatwaves

For further information on health impacts, including clinical effects and mental health impacts, see Appendix 1.

## 4.3 Cross-sector impacts

The Queensland State Heatwave Risk Assessment (2019) examined how the impact of heatwaves is felt not only in the health of our communities, but also across sectors such as transport, critical infrastructure and essential services, the environment and agriculture, and our economy.

Heatwaves may cause damage to critical infrastructure and utilities and may have other community and social impacts. For example:

- critical infrastructure stress such as roads, rail, and water mains
  - roads, highways and railroad tracks may buckle, water lines may burst/fail, and power transformers may overheat increasing the risk of electrical fires
- increased energy demand and electricity spikes due to greater demand for air conditioning can create stress on energy supply infrastructure and possible power outages
- power outages can result in loss of telecommunications (phone and internet services) and also home medical devices and patient-monitoring devices (where no backup power source is available)
- increased demand for water e.g., cooling in power stations, evaporative cooling in homes and offices

<sup>13</sup> Franklin, R.C., Mason, H.M., King, J.C. et al. [Heatwaves and mortality in Queensland 2010–2019: implications for a homogenous state-wide approach](#) Int J Biometeorol (2023).

- increased stress on animals<sup>14</sup>
- damage to crops and vegetation
- increased bushfire risk
- shifts in tourism preferences due to higher temperatures
- increased risks for sporting and outdoor recreational activities
- increased stress for outdoor workers and other occupations with service interruption as well as occupational health and safety risks for industry

In addition to direct effects on individuals, heatwaves can create additional risks to health due to the potential for disruption of essential infrastructure across sectors.

- Loss of power:
  - can result in the shutdown of water treatment plants and depending on the availability of reserves in the system, may require the issuing of boil water notices. These risks will be managed by drinking water providers.
  - may cause sewerage pumps to cease operating, leading to sewage overflows into the environment which may require advice to the community to avoid high-risk areas.
  - may result in a loss of refrigeration of food, increasing the risk of food-borne illness, if not effectively managed. Loss of refrigeration can also cause damage to certain medicines, such as insulin and vaccines, reducing their efficacy.
- Heatwaves can impact animals and the associated human interactions with stressed, sick, or deceased animals increasing the risk of spreading communicable diseases and other potential public health risks.
- Warmer temperatures increase the risk of foodborne illness if food is not properly stored or handled. The prevalence of *Salmonella* and *Campylobacter* infections associated with the consumption of poultry products may increase during periods of higher temperatures.
- Longer duration heatwaves also have the potential for a change in distribution and increase in vector borne diseases.

## 4.4 The Urban Heat Island Effect<sup>15</sup>

Urban areas generate higher temperatures than nearby rural areas in a phenomenon called the urban heat island effect (UHIE). The UHIE effect can cause urban temperatures to be between 2°C and 12°C higher than nearby rural areas. This effect is generally more prominent during the night than the day.

Dark, heat absorbing and impermeable materials used to construct urban buildings and infrastructure radiate heat into their immediate surroundings and cool slowly at night. This, combined with the canyon-like form of cities, high density of vehicles and lack of green space, makes urban areas very hot.

<sup>14</sup> See the Agriculture Sector Adaptation Plan and Flying Fox Heat Stress Guideline

<sup>15</sup> Adapted from the Queensland State Heatwave Risk Assessment (2019). Additional reference: Chapman, S., Thatcher, M., Salazar, S., and Watson, J.E.M. (2019), The impact of climate change and urban growth on urban climate and heat stress in a subtropical city. *International Journal of Climatology* 39 (2019): 3013-3030.

Urban populations are exposed to increasing levels of heat, as lack of green space, buildings blocking air flow, and the prevalence of hard and heat-absorbing structures in urban areas have a multiplying effect. Moreover, heat-absorbing surfaces release heat slower at night, exposing people to elevated temperatures for longer.

See the Queensland State Heatwave Risks Assessment for UHIE risk in particular Local Government Areas in Queensland.

# 5 Roles and responsibilities

The QSDMP<sup>16</sup> outlines the requirement for hazard-specific planning. The sub-plan is based on existing disaster management arrangements and assumes all existing prevention, mitigation and preparedness activities, business continuity, response functions and recovery functions, as described in the QSDMP and the Queensland Recovery Plan continue to apply.

The following roles and responsibilities consider how Queensland’s disaster management arrangements interface with hazard specific arrangements.

## Prevention

While heatwaves cannot be prevented, their impacts can be mitigated through activities that prevent exposure to the effects of heatwaves. This includes prepared and resilient communities that have a clear understanding of the hazard to reduce exposure (i.e., protective measures such as changing sport times).

Disaster risk reduction for heatwaves also includes infrastructure design and improvements. The Queensland State Heatwave Risk Assessment (Appendix D) includes a guide on building design, urban design and urban planning. The Queensland State Infrastructure Strategy 2022-2042 outlines resilience and sustainability priorities.

Heatwaves should be included in local government risk assessments which can inform disaster risk reduction and preparedness activities.

## Preparedness and Response

**Note: See the embedded Communications Protocol (section 7) for roles and responsibilities specific to supporting heatwave notifications and communications.**

### 5.1 Whole-of-government

Heatwaves should be considered within a comprehensive all-hazards approach across the Queensland disaster management arrangements; including but not limited to:

- maintaining situational awareness<sup>17</sup> of potential heatwave conditions
- maintaining existing prevention and mitigation functions as relevant to heatwave
- maintaining all existing response functions as described in the QSDMP
- ensuring business continuity plans and arrangements are in place to manage potential disruption to critical functions and staffing

<sup>16</sup> Queensland State Disaster Management Plan 2023 [Interim 2023 QSDMP-V1.2](#) pgs 38-40

<sup>17</sup> Including through the Bureau and the SDCC Situational Awareness Platform.

- Direct impacts may include workforce issues where heatwave conditions may interrupt the ability for services to be provided due to heat health and safety issues, especially for workers with increased susceptibility.
- identifying, and promoting, places of cool refuge
- undertaking risk assessments where there is a potential for disruption or other impacts on utilities and critical infrastructure
- providing risk advice for their sector to the SDCC.

### 5.1.1 High risk weather season and heatwave preparedness

Heatwave preparedness should be integrated with severe weather season preparedness activities across all Queensland disaster management agencies. This can include:

- activation of weather monitoring systems for the summer period and review of previous season monitoring and warning systems and arrangements
- reviews of heatwave management plans and business continuity plans and arrangements in case of response requirement or interruption to services
- assessment of resource capability for a heatwave response based on potential increase in demand for services or disruption to services.

Heatwave preparedness activities also include the provision of, and contribution to:

- public information and messaging
- community and agency education and engagement
- planning and arrangements
- training and exercises.

Training and exercising for heatwave management can be incorporated into other scenario-based exercises and can consider non-health related disruptions for other agencies.

## 5.2 Queensland Health

Queensland Health incorporates the Department of Health, the HHSs and the QAS<sup>18</sup>.

### 5.2.1 The Department of Health

The Department is responsible for:

- the development and maintenance of state heatwave planning and hazard-specific planning
- undertaking risk assessments where impacts on utilities are significant, and providing health risk advice to the SDCC
- supporting HHSs in the care and safety of staff, patients and the community

<sup>18</sup> It is to be noted that whilst the QAS sits within Queensland Health and works collaboratively at all levels of the health system, it operates as an independent agency. QAS arrangements for heatwave management are outlined in the internal QAS Heatwave Response Plan.

- maintaining business continuity plans and arrangements for Department functions, which include contingencies for sustained/prolonged power outages, loss of mains water supply/cooling systems and potential staffing impact
- ensuring the welfare and safety of staff.

In addition to the above, the Department is also required to fulfil the responsibilities outlined in the Communications Protocol (Section 7).

## 5.2.2 Hospital and Health Services

The HHSs are responsible for:

- the development and maintenance of local heatwave plans and/or arrangements
- maintaining business continuity plans and arrangements which include contingencies for sustained/prolonged power outages, loss of mains water supply/cooling systems and potential staffing impacts
- the care and safety of patients and consumers (including surge capacity plans)
- ensuring the welfare and safety of staff
- liaison to address emerging public health risks (led by Public Health Units in most HHSs) via QAS and local governments, including events where patrons may be affected by heat
- helping to identify local vulnerable groups, in collaboration with disaster management groups, and consideration of these vulnerable groups in arrangements
- providing situational awareness and reporting to the Department about preparedness, response activities and community impacts prior to, during and following a heatwave event (including advice from local or district disaster management groups if relevant)
- conducting training and exercising specific to heatwaves or including heatwave management in other training and exercising where appropriate

HHSs should ensure local and district disaster management groups (L/DDMG) are included in local heatwave planning processes and activities prior to an event, and that regular communication is maintained between HHSs and disaster management groups during heatwave preparedness, response and recovery periods.

In addition to the above, HHSs are also required to fulfil the responsibilities outlined in the Communications Protocol (Section 7).

## 5.2.3 The Queensland Ambulance Service

The QAS is responsible for:

- the development and maintenance of business continuity plans and arrangements, which include contingencies for sustained/prolonged power outages; loss of mains water supply/cooling systems and potential staffing impact
- liaison with organisers of mass gathering events where patrons may be affected by heat (with local governments and HHSs)
- the care and safety of patients (with any surge managed in accordance with existing plans)
- ensuring the welfare and safety of staff.

## Recovery

Recovery activities will depend on the severity level and geographical area of the heatwave, the corresponding disruption to communities, and the level of coordinated response required.

Recovery from most heatwaves will predominantly be in the human-social functional area of recovery. Depending on the impact from the heatwave, recovery may also include impacts to the environment and infrastructure, including roads and transport.

Recovery from a heatwave event is coordinated in line with the Queensland Recovery Plan, a sub-plan of the QSDMP.

In addition to the above, the QAS is also required to fulfil the responsibilities outlined in the Communications Protocol (Section 7).

## 6 Debriefing and lessons management

Throughout the heatwave season, communications resources and processes will undergo iterative reviews.

If the sub-plan is activated, or after the cessation of the Bureau's Heatwave Service, a comprehensive debrief of all involved functions and agencies will be organised, in conjunction with respective disaster management groups where applicable.

Where local heatwave plans and processes have been engaged, HHSs and disaster management groups are also encouraged to undertake reviews.

# 7 Communication Protocol

This section of the sub-plan is the Communications Protocol (the Protocol); which Queensland Health will follow throughout the duration of the Bureau's Heatwave Service, with both internal and external stakeholders, and does not require the activation of the sub-plan.

As outlined by the National Heatwave Warning Framework:

- The Bureau delivers heatwave warnings that highlight expected weather conditions, potential impacts, and basic preventive measures.
- State agencies (Queensland Health for Queensland) provide heatwave warnings with detailed protective actions and guidance.

Queensland Health is responsible for broadcasting the state agency warnings to communities and stakeholders within Queensland.

The protocol highlights Queensland Health's role during heatwaves and the importance of clear communication to and from all stakeholders.

The protocol also stresses the importance of educational initiatives and community outreach, alongside warnings, to address potential heat-related risks.

The aim of the heatwave communications, supported by the Protocol, is to:

- Raise public awareness about the dangers of heatwaves and the serious effects it can have on the health of individuals.
- Prepare the community for a heatwave by providing information about how they can protect themselves and their families and friends, and what to do if they experience a health emergency during a heatwave.
- Reduce the flow-on demand on hospitals and health services by encouraging people to take measures to prepare, protect themselves and recover from a heatwave.
- Support stakeholders, including General Practitioners (GPs) and community services, so they can engage and communicate with at-risk communities and the broader public about ways to stay healthy in the heat.

Queensland Health maintains a Heatwave Communications Stakeholder Kit that provides communication resources and messages for stakeholders to use for their own communication needs. It is distributed across disaster management groups and is available on request by other stakeholders.

## 7.1 Preparedness education and engagement

Heatwave education and engagement activities will be led by Queensland Health, with other health stakeholders and partners agencies requested to further promote to the community and within organisations.

Preparedness education and engagement includes:

- Integrating heatwave readiness guidance (such as managing heat stress, recognising symptoms of heat illness, ensuring food safety, etc.) in overarching whole-of-government summer readiness campaigns.
- Participating in the “Get Ready” initiative, emphasising heat-related messages in partnership with the Queensland Reconstruction Authority.
- Creating and issuing information for vulnerable groups, and those who support, or care for people at risk of serious health effects from hot weather.
- Offering heat health and wellbeing suggestions to the public, HHSs, and other agencies, and establishing connections to the Bureau’s Heatwave Service website.

A stakeholder kit is available from Queensland Health that provides heatwave communication resources and messages for stakeholder use.

## 7.2 Bureau warnings

- A Bureau representative is embedded at the State Disaster Coordination Centre (SDCC) throughout the heatwave season.
- When a heatwave is forecast, the SDCC will integrate a link to the Heatwave Service in the daily Queensland Emergency Management Report (QEMR). The Bureau will also outline heatwave conditions in Hazard Risk Outlooks issued by the SDCC. This may encompass heatwave prediction maps, relevant media reports, and a link to the Queensland Government’s heat advice.
- The Bureau will work with the SDCC Watch Desk to disseminate Bureau warnings to registered Queensland disaster management stakeholders, encompassing disaster management groups, HHSs and the QAS. State disaster groups and committees may receive supplementary advisories or briefings upon request.
- Local and district disaster management groups are requested to further circulate information to other stakeholders.
- The Bureau’s Heatwave Decision Support Product provides aggregated information to the weather district and town level over the coming days (accessible through a registered users page). Disaster management stakeholders can access additional support through the Bureau's representative that is embedded in the SDCC.

## 7.3 Queensland Health warnings

There is a prevailing misconception, especially in northern states such as Queensland, that “heat warnings only pertain to the vulnerable”<sup>19</sup>. Queensland Health messaging reinforces that while vulnerable groups are more susceptible, everyone is at risk.

Heatwave health advice during all heatwave severity levels is vital, noting the research findings in Section 4.

For **low to severe heatwaves**: Queensland Health will emphasise heat health education using established and regularly reviewed templates and messages.

Given the extended nature of the heatwave season and the potential duration of individual heatwaves, it's essential to adopt varied public information strategies for all heatwave levels and ensure that messages remain fresh and relatable.

Queensland Health will issue heatwave warnings, in line with the Australian Warning System requirements, **for extreme heatwaves only**.

For **extreme heatwaves**: Queensland Health will issue warnings in line with the Australian Warning System, focusing on health-related advice, and may also release additional public messages as needed. This will include an extreme heatwave warning, compliant with the Australian Warning System, being published on the Queensland Health website by the Strategic Communications Branch (SCB) within the Department of Health.

The SCB and the HHSs impacted will also collaborate on other appropriate communication channels to promote the warning publication depending on how widespread the heatwave forecast. For example, if one regional area is forecast for extreme, the promotion of the warning publication may be led by that HHS.

### 7.3.1 Internal roles and responsibilities

Heatwave communications to the public will be predominantly led by HHS media and communication units for all three severity levels (low, severe and extreme heatwaves).

The Department of Health will coordinate with the HHSs for each heatwave event.

The Department of Health will also use Queensland Health’s centralised messaging channels and platforms during prolonged heatwave events, in addition to HHS communications.

Depending on the heatwave's intensity and affected areas, media releases, traditional media (radio, online and press) and social media may be used. This will also include the QAS.

For media inquiries, Queensland Health supervises tailored responses, including interviews and press conferences as needed.

HHSs should engage local and district disaster management groups and stakeholders outlined in ‘supporting vulnerable groups’ (section 7.5), regarding local processes and activities and maintain consistent communication with these groups before, during and after a heatwave.

For detailed internal Queensland Health processes, refer to the internal “Process for heatwave communications” document.

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<sup>19</sup> National Heatwave Warning Framework

## 7.4 Local government

To support the community during heatwave events, local governments should also provide consistent advice, consider vulnerable groups, plan events with heatwaves in mind, and promote available cool refuges. This may include but is not limited to:

- Promotion of existing places of cool refuge and/or promotion of additional accessibility (extended hours, additional community support etc).
  - consideration of local transport options in conjunction with these venues
- Promotion of local activities and cool refuges based on normal community behaviours and access to other cooler environments (shopping centres, movie theatres etc).

## 7.5 Supporting vulnerable groups

All community members should be informed during heatwaves, but those more vulnerable (high-risk groups including those with specific medical conditions) also need specialised messages. Communication tools designed for this purpose can include community newsletters, translations, and residential aged care facility communications.

### 7.5.1 Health service providers and non-government organisations

Health service providers and non-government organisations play an important role in supporting members of the community, particularly those in vulnerable groups, in promoting heat health advice and to those seeking health care and support. This may include community newsletters and residential aged care facility communications (can be adapted from the Queensland Health Stakeholder Kit).

They should also have local plans to address potential heatwave impacts on their services.

This may include but is not limited to the following service providers:

- Aged care facilities, retirement, and independent living villages
- In-home care services
- Supported disability accommodation
- General Practitioners (GPs) and other Primary Health Network service providers
- Mental health, alcohol, and other drugs service providers
- Aboriginal and Torres Strait Islander networks
- Palliative care service providers
- Pathology service providers
- Community pharmacies
- Other allied and community health service providers
- Private hospitals and day facilities

## 7.5.2 Vulnerable groups

Certain groups are particularly vulnerable to heatwaves<sup>20</sup>. These include:

- Older persons, particularly those living alone and with a pre-existing health condition, or those living without air conditioning
- Pregnant women, breastfeeding mothers, babies, and young children
- People (of all ages) who are working outdoors or in hot environments
- Persons with mental illness<sup>21</sup>
- Persons engaging in alcohol and other substance use
- Persons with heat-sensitive chronic illness (heart disease, high blood pressure, diabetes, cancer or kidney disease)
- Persons with conditions that impair sweating (cystic fibrosis, skin disorders, scleroderma, congenital impairment of sweating)
- Persons taking certain medications that as a side effect impairs their body's ability to control body temperature.
- Those from non-English speaking backgrounds or cultural practices that might amplify heat exposure
- People experiencing homelessness

See Appendix 1 for more information.

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<sup>20</sup> Coates, L., Haynes, K., O'Brien, J., McAnaney, J. & de Oliveira, F.D. (2014) Exploring 167 years of vulnerability: An examination of extreme heat events in Australia 1844–2010. *Environmental Science & Policy* 42: October 2014(33-44)

<sup>21</sup> Hansen A, Bi P, Nitschke M, Ryan P, Pisaniello D, Tucker G. The effect of heat waves on mental health in a temperate Australian city. *Environ Health Perspect*. 2008 Oct;116(10):1369–75.

## Appendix 1: Vulnerable groups (cont.)

An individual belonging to multiple at-risk groups may face a significantly heightened risk of heat illness due to the compounded effects of these factors<sup>22</sup>. For example, an elderly person with heart disease might have reduced ability to sweat due to their medications and may also avoid using air conditioning for cost saving purposes.

It is important to note that susceptibility to high temperatures can be exacerbated by certain behaviours and conditions, such as those that increase heat gain by impeding sweating, reducing plasma volume in the bloodstream or diminishing cardiac output.

Other contributing factors when determining vulnerability can include the nature of the urban environment (which can amplify heat exposure), dwelling type, social connectedness (including living alone), access to health services and access to internet and telecommunication services<sup>23</sup>. If extreme heat affects critical infrastructure, especially electricity, the overall vulnerability of some populations will intensify.

The National Climate Change Adaptation Research Facility<sup>24</sup> (NCCARF) categorises these as factors that influence exposure, sensitivity, and adaptation (see Figure 2).

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<sup>22</sup> National Heatwave Warning Framework

<sup>23</sup> Physical Environment Analysis Network (PEAN) (2021) Reducing illness and lives lost from heatwaves. Final Report March 2021. Australian Government Data Integration Partnership for Australia

<sup>24</sup> National Climate Change Adaptation Research Facility 2016: [Synthesis-Summary\\_Heatwaves\\_web-1.pdf \(nccarf.edu.au\)](https://nccarf.edu.au/Synthesis-Summary_Heatwaves_web-1.pdf)

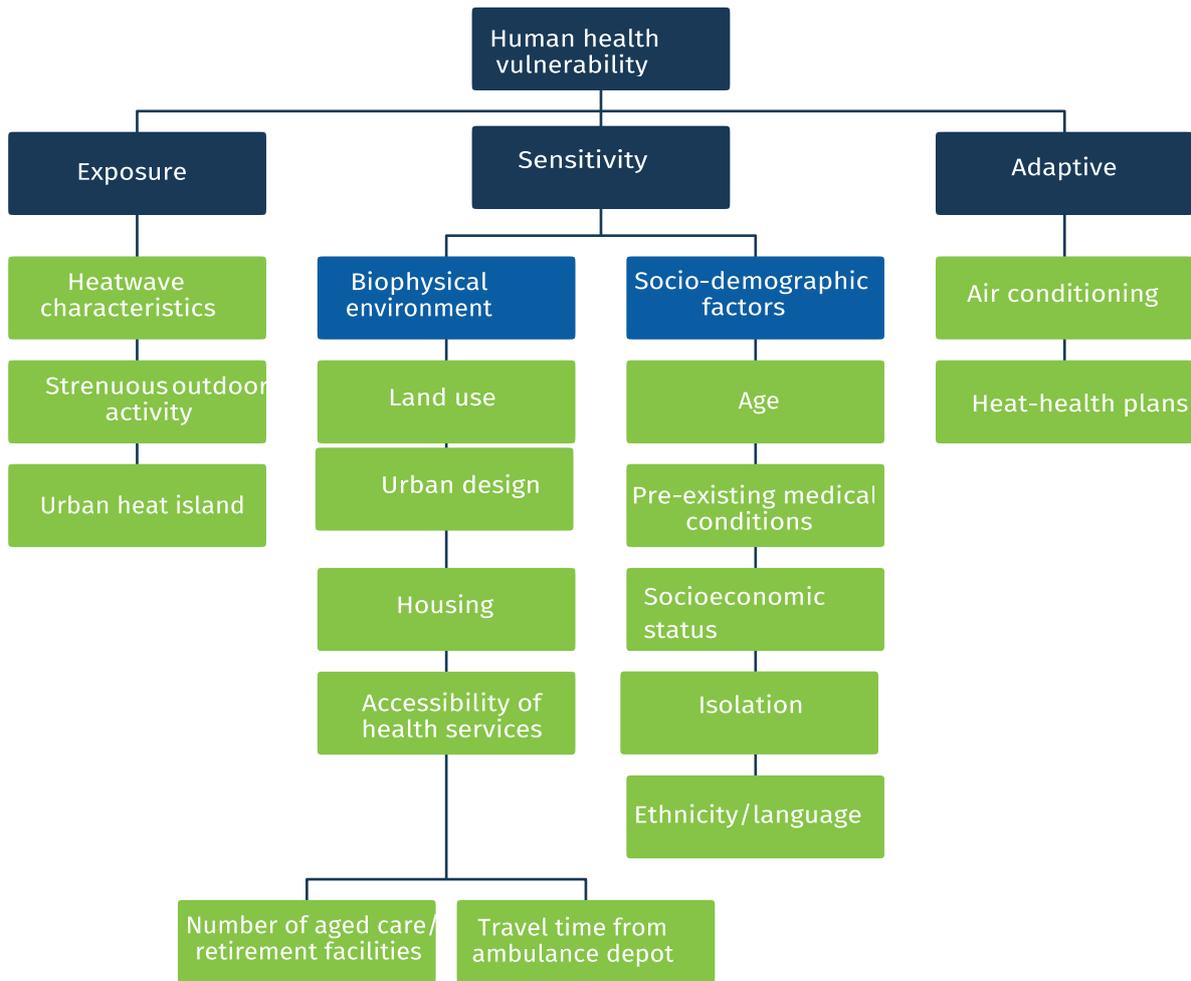


Figure 2: Multitude of factors that create vulnerability to extreme heat events. Source: NCCARF

## Appendix 2: Health impacts

The human body needs to maintain a temperature of approximately 37 degrees Celsius to maintain normal body functions. Heatwaves can increase body temperature through radiation and conduction when the ambient temperature is greater than skin temperature.

Heat loss can occur through convection and evaporation, through sweating, and assisted by behavioural changes such as drinking water and seeking shade or other cooler locations<sup>25</sup>.

The body cools itself by sweating, which normally accounts for 70 to 80% of the body's heat loss. If a person becomes dehydrated or is taking certain medications, they may not sweat as much, and therefore their body temperature rises. Humidity will also impair the ability for the sweat to evaporate.

Dehydration may happen after exercise (especially in hot weather), severe diarrhoea or vomiting, drinking too much alcohol, taking certain medications (for example, diuretics) and not drinking enough water.

### 2.1 Clinical symptoms of a heatwave: heat illness

Common clinical symptoms of a heat illness include but are not limited to:

- **heat rash** also known as prickly heat, consists of small, red, itchy, or prickly skin lesions due to plugging of sweat glands.
- **heat cramps** are painful, often severe, involuntary spasms of the large muscle groups used in strenuous exercise. They tend to occur after intense exertion and often develop during heavy exercise while sweating profusely and replenishing fluid loss with non-electrolyte containing water.
- **heat exhaustion** is considered a precursor of heat stroke. It may resemble heat stroke, with the difference being that neurologic function remains intact. Heat exhaustion is marked by excessive dehydration and electrolyte depletion, with symptoms including headache, nausea, and vomiting, dizziness, tachycardia, malaise, and myalgia.
- **heatstroke** is heat illness which can present similarly to heat exhaustion. Heatstroke can lead to a change in mental status, which may include an altered level of consciousness, aggressive or strange behaviours, or seizures. The presence, or absence, of sweating is a poor guide to diagnosing heatstroke.

Not all people who present with symptoms of hyperthermia during a heatwave have heat illness. The most common causes of hyperthermia continue to be related to fever (usually due to infection, viral illness, or associated with other systemic diseases), malignancy, or drug reactions.

### Clinical management of heat illness

Rehydration and cooling are the cornerstones of clinical management of heat exposure.

- People experiencing heat-related symptoms must be moved to a cool environment as soon as possible, or have their surrounding environment cooled. Cooling should be

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<sup>25</sup> Atha WF. Heat-related illness. *Emerg Med Clin North Am.* 2013 Nov;31(4):1097–108.

encouraged and supported with avoidance of shivering, which may actually increase core body temperature due to the increase in physical activity.

- Most people with heat-related symptoms can be managed in their work/home/recreational environment, however medical care should be sought immediately for anybody who fails to improve with fluids and cooling, has a change in mental status or behaviour or has symptoms such as seizures or cardiac arrest.

## 2.2 Exposure<sup>26</sup>

Working in hot and/or humid environments can be uncomfortable, and more importantly, lead to heat-related illness which can be fatal. Heat-related illness may be contributed to by several factors either in isolation or compounding:

- Wearing high levels of personal protective equipment (e.g., HAZMAT suits).
- Heat from extremely hot or molten material (e.g., foundries, steel mills, bakeries, smelters, glass factories and furnaces).
- Sun exposure (e.g., outdoor work such as construction, road repair, open-pit mining and agriculture).
- High humidity (e.g., laundries, restaurant kitchens and canneries).
- Internal body heat (e.g., from heavy manual work).
- Difficulty in accessing shade or places of respite from the heat during breaks.
- Difficulty in accessing rehydration because of work location.

## 2.3 Sensitivity

Section 7.5.2 outlines vulnerable groups; including heat-sensitive chronic illnesses, conditions and medications that can increase susceptibility to heat illness by impairing a person's ability to control their body temperature.

Certain prescription medications and illicit drugs can directly or indirectly contribute to or worsen heat illness by:

- directly increasing the body's core temperature
- reducing the ability for the body to sweat
- decreasing the feeling of thirst
- increasing the frequency of going to the bathroom
- worsening already low blood pressure in vulnerable persons
- reducing the effectiveness of the kidneys
- dehydration increasing the strength and effect some medications have on the body
- altering human behaviour.

Some examples include:

- cardiac medications for controlling blood pressure and heart rate (e.g., beta blockers/vasoconstrictors, antihypertensives)
- anticholinergic medications (e.g., sedating antihistamines, some antidepressants)

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<sup>26</sup> <https://www.worksafe.qld.gov.au/safety-and-prevention/hazards/hazardous-exposures/heat-stress>

- diuretics (including alcohol)
- antipsychotic medications
- stimulants (e.g., illicit drugs, some thyroid medications, stimulant laxatives)
- other medications (e.g., immunosuppressants, anticonvulsants, anticoagulants, diabetic medications)

For more detailed information about the processes of these medications in contributing to or worsening heat illness, see Table 2 below.

Mechanism	Drug class or subclass	Examples of drug/medication	
Reduced vasodilation	Beta-blockers	Atenolol, Metoprolol, Propranolol	
	Triptans	Sumatriptan, Zolmitriptan	
Decreased sweating	Anticholinergics	Tricyclic antidepressants	Amitriptyline, Clomipramine, Dothiepin
		Sedating antihistamines	Promethazine, Doxylamine, Diphenhydramine
		Phenothiazines	Chlorpromazine, Thioridazine, Prochlorperazine
		Other anticholinergics	Benztropine, Hyoscine, Clozapine, Olanzapine, Quetiapine, Oxybutynin, Solifenacin
	Beta-blockers	Atenolol, Metoprolol, Propranolol	
Increased heat production	Antipsychotics	Clozapine, Olanzapine, Quetiapine, Risperidone	
	Stimulants	Amphetamines, Cocaine, Thyroxine	
Decreased thirst	Antipsychotics	Haloperidol, Droperidol	
	Angiotensin-converting enzyme (ACE) inhibitors	Enalapril, Perindopril, Ramipril	
Dehydration	Alcohol		
	Diuretics	Frusemide, Hydrochlorothiazide, Acetazolamide, Aldosterone	
	Stimulant laxatives	Senna extract, Bisacodyl	

Mechanism	Drug class or subclass	Examples of drug/medication
	All anti-hypertensives	Nitrates Glyceryl trinitrate, Isosorbide mononitrate
		Calcium channel blockers Amlodipine, Felodipine, Nifedipine
Increased toxicity for drugs with a narrow therapeutic index in dehydration	Various	Digoxin, Lithium, Metformin, Warfarin, immunosuppressants, anticonvulsants, statins, narcotics

Table 2: Mechanisms for medication increasing the risk of heat-related illness<sup>27</sup>.

<sup>27</sup>Adapted from Heat Health Preparedness Guidance, Department of Health, Victoria, 2022.

## 2.4 Mental health impacts of a heatwave<sup>28</sup>

Mental, behavioural, and cognitive disorders can be triggered or exacerbated during heatwaves, predisposing individuals to heat-related morbidity and mortality.

### Acute effects – direct mental health impact

There is a positive correlation between high ambient temperature and increased hospital admissions for mental and behavioural disorders during heatwaves.

- Specific illnesses resulting in increased hospital admissions during heatwaves include symptomatic mental disorders, the behavioural and psychological symptoms associated with dementia, mood (affective) disorders, anxiety and stress-related disorders, somatoform disorders and disorders of psychological development.
- Fluctuations in weather can cause an increase in the incidence of mental stress, depression, and suicide. As temperatures rise to extreme, stresses of everyday home, social, or work life are likely to be compounded by lethargy, lack of sleep, and the inability to function normally during oppressively hot conditions.
- Excess heat may increase psychological stress, which can affect task performance. This psychological stress is also associated with an increase in violent crime and domestic violence.

### Acute effects – increased vulnerability of those with mental health disorders

Many medications used in the management of psychiatric disorders can increase vulnerability to heat-related morbidity by altering the body's ability to thermoregulate.

- Drugs such as antipsychotics<sup>29</sup>, anticholinergics, antidepressants, sedatives, and mood stabilisers that impair sweating and/or increase heat production are used in the treatment of conditions such as dementia, Alzheimer's disease, psychosis, psychiatric disorders, mood disorders, personality disorders, and anxiety disorders.
- Cognitive awareness of environmental conditions and the ability to undertake adaptive behaviours, such as increased fluid intake or wearing appropriate clothing, are important coping mechanisms that may be compromised in those with disabling mental illnesses such as senility, psychosis, schizophrenia, and developmental disorders.
- Heat stress may cause disorientation, confusion and delirium. This risk is more pronounced for older people with cognitive conditions and dementia.

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<sup>28</sup> Hansen A, Bi P, Nitschke M, Ryan P, Pisaniello D, Tucker G. The effect of heat waves on mental health in a temperate Australian city. *Environ Health Perspect.* 2008 Oct;116(10):1369–75.

<sup>29</sup> These drugs can be used in the treatment of the behavioural and psychological symptoms associated with neurocognitive disorders such as dementia.

# Appendix 3: Heat preparedness for facilities

The following prompts<sup>30</sup> are intended to assist in the development of heat plans in health facilities providing services to vulnerable persons (such as GP clinics, residential aged care facilities, disability services etc). The principles can be applied and adapted to other settings.

Considerations - FACILITY	Yes / No / NA	Person / Role Responsible
<b>Before a heatwave (prevention and preparedness)</b>		
Does your facility have a heat plan?		
Do you have a plan for how your facility will monitor for approaching heatwave conditions (Bureau of Meteorology notifications, local disaster management dashboard)?		
Do you have a plan for the cooling of facility areas during a heatwave (e.g., fans and air conditioning, cool water provided and drinking stations promoted, blinds closed to block the sun)?		
Does your business continuity plan include plans for failure of: <ul style="list-style-type: none"> <li>power sources to the facility (cooling units, lighting, communications devices, and networks)</li> <li>appropriate and safe storage units for medications (cupboards, temperature-controlled fridges)</li> <li>food and drink accessibility and storage</li> <li>infrastructure of and surrounding the facility (buildings, roads, cables)?</li> </ul>		
<b>During a heatwave (response)</b>		
Do you have a plan for how your facility will monitor conditions during a heatwave (Bureau of Meteorology notifications, local disaster management dashboard)?		
Do you have a list of appropriate contacts to assist your response to any heat-related incidents during a heatwave?		
<b>After a heatwave (recovery)</b>		
Do you have a plan to review, maintain, and repair facility infrastructure following a heatwave?		
Do you have a plan for activating any recovery effort and repairs to the facility if required?		

<sup>30</sup> Adapted from *Heat Health Preparedness Guidance*, Department of Health, Victoria, 2022

Considerations - STAFF	Yes / No / NA	Person / Role Responsible
<b>Before a heatwave (prevention and preparedness)</b>		
Does your facility have a plan in place to support staff who are affected by heatwaves?		
<p>Have you considered having a staff meeting/conducting training for staff on heat health and management prior to heatwave season (October through March)?</p> <ul style="list-style-type: none"> <li>• Are facility staff trained to recognise signs of heat-related illness, including heatstroke – which is a medical emergency?</li> <li>• Are facility staff trained to initiate proper cooling and resuscitative measures for themselves and any patients/residents during a heatwave, including calling for emergency services in a medical emergency?</li> </ul>		
Do you have a treatment plan/appropriate equipment and resources available to treat staff affected by heat illness (e.g., oral rehydration solutions, access to water, cooling equipment, first aid equipment, access to communication devices in an emergency)?		
<b>During a heatwave (response)</b>		
Include refreshers and reminders in staff communications and meetings; including prevention of heat illness, early recognition of symptoms and treatment of heat illness.		
<b>After a heatwave (recovery)</b>		
Do you have a plan to hold a debrief after any significant heatwave events to obtain staff feedback on processes and management of the event?		
Do you have a plan to appropriately collect, collate, implement, and monitor feedback provided by staff following a heatwave event to support continuous improvement processes?		

Considerations – PERSONS AT RISK	Yes / No / NA	Person / Role Responsible
<p><i>Periods of extreme or prolonged heat can affect health by causing heat-related illness and precipitating or exacerbating other medical conditions. The below should be considered for <b>persons at risk of heat-related illness</b> during heat events.</i></p>		
<p><b>Before a heatwave (prevention and preparedness)</b></p>		
<p>Does your facility have a plan in place to support patients/residents who are affected by heatwaves?</p>		
<p>Have you considered conducting an education session for patients/residents/carers on heat health and management prior to heatwave season (October through March)? See response actions for Education session should outline prevention and treatment considerations that are reinforced in “During a heatwave” actions below.</p>		
<p>Do you have a treatment plan/appropriate equipment and resources available to treat patients/residents affected by heat illness (e.g., oral rehydration solutions, access to water, cooling equipment, first aid equipment, access to communication devices in an emergency)?</p>		
<p><b>During a heatwave (response)</b></p>		
<p>Are patients/residents/carers educated to recognise the early signs of heat-related illness, including heatstroke – which is a medical emergency?</p>		
<p>Are patients/residents/carers trained to initiate proper cooling and resuscitative measures during a heatwave, including calling for emergency services in a medical emergency?</p>		
<p>Are patients/residents/carers educated on how to appropriately store and take their medication during heat events?</p>		
<p>Are patients/residents/carers educated about the potential side effects of their medications (with physicians considering optimal dosing) during heat events?</p>		
<p>Are patients/residents/carers provided recommendations for oral hydration methods appropriate to their health status, particularly those who have a decreased perception of thirst or a relevant medical condition (e.g., cardiovascular disease, renal disease)?</p>		
<p>Have patients/residents/carers received education on heat avoidance and have measures been implemented to prevent exposure during heat events (e.g., rescheduling activities to earlier/later day times when it is cooler, moving to online appointments or postponing, cancelling physical activities, encouraging visits to cool places of refuge)?</p>		

Considerations – PERSONS AT RISK	Yes / No / NA	Person / Role Responsible
<b>After a heatwave (recovery)</b>		
Has follow up been arranged for at risk patients/residents/carers who are less supported in the community, are socially isolated or have recently experienced heat-related illness during a heat event?		
Do you have a plan to appropriately collect, collate, implement, and monitor feedback provided by staff following a heatwave event to support continuous improvement processes?		

# Appendix 4 - Guidance for General Practices

Health professionals can reduce the likelihood or severity of health-related illness by identifying those vulnerable and implementing strategies to minimise the risk. This can include, but is not limited to, General Practitioners (GP) clinics, residential aged care facilities (RACFs), disability services and other settings responsible for delivery of healthcare.

For example, health professionals can educate at-risk patients and their carers about how to stay healthy in the heat by adjusting their behaviour, storing, and taking medications and drinking fluids.

The following checklist<sup>31</sup> is a checklist for reviewing patients in your practice. For guidance on preparing your facility see Appendix 3.

Considerations for identifying patients at risk in your practice	Yes / No / NA
Are staff trained to recognise at-risk patients and the management of heat-related illness?	
Be aware of the potential side effects of medicines and consider optimal dosing during periods of hot weather.	
Consider developing a list of at-risk clients and how you will ensure that this list is accessible to relevant staff. Are you able to identify any of your patients at risk of heat-related illness: <ul style="list-style-type: none"> <li>• Individual characteristics               <ul style="list-style-type: none"> <li>○ Older persons, infants or young children</li> <li>○ Overweight or obese</li> <li>○ Pregnancy or breastfeeding</li> <li>○ Low cardiovascular fitness level</li> </ul> </li> <li>• Chronic illness</li> <li>• Conditions that impair sweating</li> <li>• Acute illness</li> <li>• Impairment of activities of daily living (poor mobility, cognitive impairment)</li> <li>• Social factors</li> <li>• Occupation/recreation in hot environments</li> </ul>	
Monitor fluid intake and drug therapy, especially in older people and those with significant comorbidities.	
Consider including heat-related content in assessment tools and management plans for vulnerable patients. For example, consider adding a question in the over-75 health assessment that asks a patient to consider their personal care during extreme heat.	

<sup>31</sup> Adapted from *Heat Health Preparedness Guidance*, Department of Health, Victoria, 2022

Considerations for educating patients	Yes / No / NA
<p>For those patients at risk, have you discussed heat and heat advice with patients as part of a pre-summer medical assessment, and do they have a heat plan for the coming season?</p> <p>Do these plans have appropriate follow-up and supports in place, including:</p> <ul style="list-style-type: none"> <li>• that their care plan contains heat-specific advice</li> <li>• contact details for their doctor and their other care workers</li> <li>• that there are adequate arrangements for food shopping to reduce having to go outdoors during the heat</li> </ul>	
<p>For patients that have carers, are the carers aware of their heat plan and keeping cool?</p>	
<p>Do they know how to adjust their behaviour to keep cool?</p> <p>e.g., reduce excessive clothing, use cooling devices at home planning their day to avoid being outside during the hottest part of the day, reducing excessive clothing, using electric fans, applying damp towels containing ice to the skin, and taking cool showers.</p> <p>If they must leave the house, advise them to also stay in the shade when possible and wear a hat and sunscreen.</p>	
<p>Do they know to increase fluids during hot weather, and what types of fluids?</p> <p>Discourage avoidance of fluids due to continence issues and advise patients on drinking recommendations appropriate to their health status, particularly those who have a decreased perception of thirst.</p> <p>Fluids are not just limited to water; they can be icy poles, fruit juice or cordial. Salt tablets, sports drinks or electrolyte-carbohydrate supplements offer no benefits and may be harmful because of high osmotic load.</p>	
<p>Consider providing written information /booklets/ factsheets, with more details about staying healthy in the heat</p>	

# Abbreviations

Term	Definition
<b>DMB</b>	Disaster Management Branch
<b>EHF</b>	Excess Heat Factor
<b>HHS</b>	Hospital and Health Service
<b>NHWF</b>	National Heatwave Warning Framework
<b>QAS</b>	Queensland Ambulance Service
<b>QHDISPLAN</b>	Queensland Health Disaster and Emergency Incident Plan
<b>QSDMP</b>	Queensland State Disaster Management Plan
<b>SCB</b>	Strategic Communications Branch (Queensland Department of Health)
<b>SDCC</b>	State Disaster Coordination Centre
<b>SHECC</b>	State Health Emergency Coordination Centre
<b>The Bureau</b>	The Bureau of Meteorology