Queensland Health Heatwave Management Sub-Plan

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For more information contact:
Aeromedical Retrieval and Disaster Management Branch
Department of Health
Mail: GPO Box 48, Brisbane QLD 4001
Email: healthdisastermanagement@health.qld.gov.au
Phone: 07 3708 5221

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<td></td>
</tr>
</tbody>
</table>
Authority

In accordance with the *Queensland State Disaster Management Plan 2018*, Queensland Health is the primary agency responsible for the hazard of heatwave and maintenance of an effective hazard-specific plan.

The *Queensland Disaster Management Act 2003* provides the legislative basis for the *Queensland Health Heatwave Management Sub-Plan*.

The Chief Health Officer and Deputy Director-General Prevention Division, on behalf of the Director-General, maintains this plan.

The 2019 *Queensland Health Heatwave Management Sub-Plan* is hereby approved and recommended for distribution.

June 2019

Distribution

The *Queensland Heatwave Management Sub-Plan* is a public facing document available to:

- Queensland Health
- the Department of Health
- all Hospital and Health Services via Chief Executives and Disaster Coordinators
- Queensland Ambulance Service
- other members of the health sector including but not limited to aged care facilities, private hospitals, primary health and community care providers
- the State Disaster Coordination Centre and partner agencies in the Queensland disaster management arrangements
- other Australian jurisdictions
- the wider community.

The plan is also publicly available on the internet on Queensland Health and Queensland Government websites.
Version Control

This plan will be updated electronically and available on the Queensland Health intranet and internet sites. The electronic copy is the master copy and, as such is the only copy, which is 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.

<table>
<thead>
<tr>
<th>Amendment</th>
<th>Entered</th>
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<tbody>
<tr>
<td>Number</td>
<td>Issued (date)</td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

Monitoring and Review

This plan shall be reviewed:

- following activation of the plan in response to a heatwave event
- following any major exercise designed to test the effectiveness of this plan, if evaluation of the exercise identifies a moderate or significant amendment is required
- on introduction of any major structural, organisational or legislative changes that affect Queensland Health operations or Bureau of Meteorology heatwave forecasting or warning systems
- or, if any of these situations do not arise the plan will undergo a major review every three years.

Amendments

Proposed amendments or additions to this plan are to be forwarded to:

Executive Director, Aeromedical Retrieval and Disaster Management Branch
Prevention Division
Department of Health
GPO Box 48
Brisbane QLD 4001
1. Structure and Governance

1.1 Introduction

Heatwaves are Queensland’s equal third priority in the Queensland State Natural Hazard Risk Assessment 2017:

“Heatwaves have a broad range of potential health effects including mortality rates among vulnerable persons, as well as potential impacts on essential health and wellbeing services. Climate projections show that extreme heat events are expected to occur more often and with greater intensity in the future”.

1.2 Purpose and Aim

In accordance with the Queensland State Disaster Management Plan 2018 (QSDMP), Queensland Health is the primary agency with responsibility for the hazard of heatwave.

The purpose of the Queensland Health Heatwave Management Sub-Plan (this plan) is to outline the arrangements for the management of heatwaves in Queensland across preparedness, response and recovery.

The aim of this plan is to enable Queensland to mitigate the effects of, prepare for, respond to, and recover from heatwaves.

1.3 Definitions

The Bureau of Meteorology (BoM) defines heatwave as “three or more days of high maximum and minimum temperatures that are unusual for that location”. Heatwaves are calculated using the forecast maximum and minimum temperatures for the next three days, compared to both actual temperatures over the previous 30 days and to the ‘normal’ temperatures expected for that location based on past records.

1.4 Objectives

The objectives of this plan are to:

• outline the context and risk of heatwaves in Queensland
• articulate the roles and responsibilities of the health sector and other stakeholder agencies in line with Queensland’s disaster management arrangements
• outline arrangements for preparedness, response and recovery for heatwaves
• describe how notifications and information about heatwaves will be handled, and how assessment and activation of relevant plans will occur
• describe triggers 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.

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1 Queensland Natural Hazard Risk Assessment, p. 89.
1.5 Scope and application

This plan acknowledges the challenges to and requirements of relevant sectors posed by heatwave. However, the primary intent of this plan is to reduce the health impact of heatwaves, as a hazard, on Queensland communities, in line with Queensland Health’s responsibilities under the QSDMP and as a hazard specific plan.

1.6 Hazard Specific Planning

Hazard specific plans, in accordance with the QSDMP:

- “address the hazard actions across all phases of disaster management (PPRR)”
- “include information on how Queensland’s disaster management arrangements link with the hazard specific arrangements”
- “support the primary agency to manage the hazard specific event”.

Queensland Health as the primary agency for heatwaves has a responsibility:

- “for the development of the hazard specific plan, in consultation with affected stakeholders”
- “to communicate and maintain relations with national hazard specific counterparts”
- “to ensure any state hazard specific plans link to and align with corresponding national hazard specific plans and arrangements”
- “to maintain appropriate communication and relationship with national counterparts”.

A such this 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 continue to apply.

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4 Queensland State Disaster Management Plan, p. 39.
1.7 Queensland’s Disaster Management Arrangements

The QSDMP outlines the functions of all agencies and disaster management groups across the four phases of disaster management; the prevention of, preparedness for, response to and recovery from disaster events (PPRR).

1.7.1 Prevention

While it is not possible to prevent a heatwave, significant activities can be undertaken by all entities within the existing arrangements. Government agencies responsible for specific prevention functions continue with those responsibilities under this plan and should consider how those activities align with, and could be applied to, heatwaves.

<table>
<thead>
<tr>
<th>Lead Agency</th>
<th>Prevention Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland Fire and Emergency Services</td>
<td>Hazard mapping, Bushfire mitigation programs</td>
</tr>
<tr>
<td>Queensland Reconstruction Authority</td>
<td>Disaster resilience and mitigation policy and planning, Disaster resilience and mitigation funding</td>
</tr>
<tr>
<td>Department of Local Government, Racing and Multicultural Affairs</td>
<td>Disaster mitigation and resilience funding</td>
</tr>
<tr>
<td>Department of State Development, Manufacturing, Infrastructure and Planning</td>
<td>Building our Regions program, Land use planning</td>
</tr>
<tr>
<td>Department of Housing and Public Works</td>
<td>Building Code</td>
</tr>
</tbody>
</table>

Table 1 Prevention functions under the Queensland State Disaster Management Plan

1.7.2 Preparedness

Preparedness activities apply to all agencies and include:

- hazard-specific planning that can incorporate consideration of heatwave if there is a likelihood of overlap of response or recovery functions
- functional planning that identifies how entities address functional activities and provide coordination or support to the management of a heatwave event
- business continuity planning to ensure any disaster response and critical business functions of the entity can be maintained during a heatwave

- capability development and integration activities including training and exercising of plans and arrangements, which are requirements for all agencies and groups within the disaster management arrangements and should consider heatwave events.

Business continuity planning should also consider both direct and indirect impacts:

- 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
- indirect impacts due to disruption to infrastructure such as power or transport systems.
1.7.3 Response

The QSDMP identifies response functions, which remain the responsibility of the allocated agency or group before, during and following a heatwave event.

<table>
<thead>
<tr>
<th>Response Function</th>
<th>Lead Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evacuation management</td>
<td>Local Disaster Management Groups; Australian Red Cross (re-unification)</td>
</tr>
<tr>
<td>Search and rescue</td>
<td>Queensland Police Service</td>
</tr>
<tr>
<td>Public health, mental health and medical services</td>
<td>Queensland Health</td>
</tr>
<tr>
<td>Mass casualty management</td>
<td>Queensland Health</td>
</tr>
<tr>
<td>Mass fatality management (including victim identification)</td>
<td>Queensland Health; Queensland Police Service</td>
</tr>
<tr>
<td>Emergency medical retrieval</td>
<td>Queensland Health</td>
</tr>
<tr>
<td>Temporary emergency accommodation</td>
<td>Local Disaster Management Groups; Department of Housing and Public Works</td>
</tr>
<tr>
<td>Emergency supply</td>
<td>Queensland Fire and Emergency Services</td>
</tr>
<tr>
<td>Resupply</td>
<td>Queensland Fire and Emergency Services; Local Disaster Management Groups; Queensland Police Service</td>
</tr>
<tr>
<td>Damage assessments</td>
<td>Queensland Fire and Emergency Services</td>
</tr>
<tr>
<td>Reticulated water supply and dam safety</td>
<td>Department of Natural Resources, Mines and Energy</td>
</tr>
<tr>
<td>Energy infrastructure (electricity, gas and fuels)</td>
<td>Department of Natural Resources, Mines and Energy</td>
</tr>
<tr>
<td>Telecommunications industry engagement</td>
<td>Department of Housing and Public Works</td>
</tr>
<tr>
<td>Transport systems</td>
<td>Queensland Police Service; Traffic management: Department of Transport and Main Roads: Road recovery</td>
</tr>
<tr>
<td>Building and engineering services</td>
<td>Department of Housing and Public Works</td>
</tr>
<tr>
<td>ICT infrastructure</td>
<td>Department of Housing and Public Works</td>
</tr>
<tr>
<td>Human and social recovery</td>
<td>Department of Communities, Disability Services and Seniors</td>
</tr>
</tbody>
</table>

Table 2 Response functions under the Queensland State Disaster Management Plan
1.7.4 Recovery

The QSDMP also outlines the priorities and responsibilities for recovery. Recovery from a heatwave event is managed in line with the five broad functional areas: human and social, economic, environment, building, roads and transport. The recovery may be managed at the state level through functional recovery groups or may be managed at a local or district level. This will depend on the severity level and geographical area of the heatwave, the corresponding disruption to communities, and the level of coordinated response required.

1.8 Related Documents

This plan is a sub-plan of the Queensland Health Disaster and Emergency Incidents Plan (QHDISPLAN).

- Hospital and Health Services (HHSs) shall also develop and maintain heatwave management plans or arrangements in line with the requirements of the QHDISPLAN and the Disasters and Emergency Incidents Health Service Directive (HSD).

This plan also serves as a hazard-specific plan of the QSDMP.

- Local and district disaster management groups and individual agency heatwave management plans may be developed relevant to local needs and risk.

The multi-agency Heatwave Response Communications Protocol is a supplementary document to this plan.

- The protocol is used in circumstances where information and communications about heatwave are distributed to stakeholders and the community, but where the level of impact does not warrant activation of this plan at the state level.
- While the BoM Heatwave Service is in operation, the protocol will be considered business as usual for all Queensland Health and external stakeholders identified with roles and responsibilities therein.
2. The Heatwave Context

2.1 The Heatwave Service for Australia

The Heatwave Service for Australia is a BoM product, which operates generally from October/November to March/April annually, dependent on need. It provides advance notice of predictions of low intensity, severe and extreme heatwave conditions allowing government, emergency services and communities time to adopt measures to reduce the impact.

The service uses colour coded maps to show the location, or predicted location, of heatwaves over a three-day period, while consecutive maps help illustrate heatwave conditions that may be persisting for days. There are 2 sets of maps.

• The Heatwave Assessment consists of a panel of two maps across Australia for the previous two three-day periods.
• The Heatwave Forecast consists of a panel of five maps across Australia for the next five three-day periods.

The colour coding system is described in Table 3, while further information regarding interpretation of maps, with examples, is included in Appendix 1.

Heatwaves may be local, state-wide or even national. There are also likely to be different levels of heatwave across these different geographic regions and different forecasts at any one time, for different parts of the state.

<table>
<thead>
<tr>
<th>Heatwave Type</th>
<th>Colour Code</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>No heatwave</td>
<td>White</td>
<td>Normal</td>
</tr>
<tr>
<td>Low intensity heatwave</td>
<td>Yellow</td>
<td>Top 10%</td>
</tr>
<tr>
<td>Severe heatwave</td>
<td>Orange</td>
<td>Top 2%</td>
</tr>
<tr>
<td>Extreme heatwave</td>
<td>Red</td>
<td>Top 1%</td>
</tr>
</tbody>
</table>

Table 3 Heatwave severity levels colour coding
2.2 Heatwave Risk and Impact

The *Queensland State Natural Hazard Risk Assessment*, conducted in 2017, identified heatwaves as the equal third highest priority natural hazard to the state. The subsequent *Queensland State Heatwave Risk Assessment 2019*, confirmed that 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.

### 2.2.1 Likelihood

Queensland Department of Environment and Science heatwave modelling indicates that Queensland, and Brisbane in particular, is at risk of more frequent heatwaves. Climate projections show that extreme heat events are expected to occur more often and with greater intensity in the future.

### 2.2.2 Impact

The impacts of heatwaves, both clinical and non-clinical, are outlined below. Further detail is included in Appendix 2, and Appendix 3 describes vulnerable groups and possible strategies.

**Clinical Impacts**

In the last 200 years, severe and extreme heatwaves have taken more lives than any other natural hazard in Australia. Deaths and health problems due to heat increase once the top 10% of temperatures are reached with further increases in temperature increasing morbidity and mortality.

Health impacts may include:

- increased human morbidity and mortality, particularly among the elderly and infirm\(^5\)
- direct health impacts due to heat illness
- indirect health impacts due to exacerbation by heatwave conditions of existing diseases
- public health impacts, including increased risk of disease transmission from heat affected or deceased animals (for example flying foxes)
- mental health impacts.

**Non-clinical Impacts**

As well as clinical effects, a heatwave may cause damage to critical infrastructure and utilities and may have other community and social impacts, including:

- increased energy demand and electricity spikes due to greater demand for air conditioning, which can create stress on energy supply infrastructure and possible power outages
- power outages can increasingly result in loss of telecommunications (phone and internet services) and also on home patient monitoring devices
- increased demand for water e.g. human consumption, cooling in power stations, evaporative cooling in homes and offices
- infrastructure stress, on buildings, roads, rail and other infrastructure, which may cause roads and highways to buckle, water lines to burst and power transformers to overheat potentially causing electrical fires
- shifts in tourism preferences due to higher temperatures
- increased risks for sporting and outdoor recreational activities
- stress for outdoor workers and other occupations with service interruption as well as occupational health risks for industry\(^6\)
- increased bushfire risk, especially during drought,
- increased stress in animals, which may result in more animal attacks
- damage to crops and vegetation with potentially catastrophic crop failures.

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2.2.3 Potential Community Impact

The potential health impacts for each level of heatwave severity are as follows:

<table>
<thead>
<tr>
<th>Heatwave Type</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low intensity heatwave</td>
<td>Most people expected to have adequate capacity to cope with this level of heat but begin to see health effects.</td>
</tr>
<tr>
<td>Severe heatwave</td>
<td>Increased morbidity and mortality for vulnerable groups, such as those over 65, pregnant women, babies and young children, and those with chronic illness (e.g. renal disease, ischaemic heart disease).</td>
</tr>
<tr>
<td>Extreme heatwave</td>
<td>Will impact normally reliable infrastructure, such as power and transport and are a risk for anyone who does not take precautions to keep cool, even those who are healthy.</td>
</tr>
</tbody>
</table>

Table 4 Heatwave intensity level potential community impact

2.2.4 Vulnerable groups

Those people especially at risk from heatwaves include the elderly, the very young, people who work outdoors, low socio-economic households, those with chronic disease conditions or other compromised physical and mental wellbeing, and potentially those from non-English speaking backgrounds or cultural groups where practices may increase exposure to heat impacts.

Belonging to more than one at-risk group may significantly increase the risk to that individual of heat illness.

Should the extreme heat impact critical infrastructure, in particular on electricity supply, then vulnerability is increased.
3. Heatwave Management Arrangements

Approaching the different levels of heatwave (low intensity, severe and extreme) using a scalable risk profile informs tiered and compounding arrangements to manage heatwaves. These arrangements include defined activation triggers and activities which are escalated dependent on required response levels as outlined in Table 5 below. See also section 5.3 Management.

<table>
<thead>
<tr>
<th>Temperatures:</th>
<th>No Heatwave</th>
<th>Low Intensity Heatwave</th>
<th>Severe Heatwave</th>
<th>Extreme Heatwave</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queensland Health Heatwave Management Sub-Plan Status</td>
<td>Prepared</td>
<td>Alert</td>
<td>Lean Forward/Stand Up considered if widespread, prolonged or affecting heavily populated areas</td>
<td>Lean Forward/Stand Up considered</td>
</tr>
<tr>
<td>HHS Heatwave Plan Status</td>
<td>Prepared</td>
<td>Alert considered</td>
<td>Lean forward/Stand up considered</td>
<td>Lean Forward/Stand up suggested</td>
</tr>
<tr>
<td>Public Information</td>
<td>Prepared</td>
<td>QEMR, Website, social media</td>
<td>News stories (Department of Health)</td>
<td>Media interviews (Department of Health)</td>
</tr>
<tr>
<td>Vulnerable groups</td>
<td>Identified</td>
<td>Targeted messaging</td>
<td>Welfare checks</td>
<td>Care assistance</td>
</tr>
</tbody>
</table>

Table 5 Summary of heatwave activities and activation status linked to heatwave levels
3.1 Monitoring and Assessment

All agencies and the community are responsible for maintaining situational awareness of potential heatwaves conditions via the BoM website and media monitoring.

Should heatwave conditions be forecast by the BoM, information will be included in the daily Queensland Emergency Management Report (QEMR) issued by the State Disaster Coordination Centre (SDCC), in line with the Heatwave Response Communications Protocol:

• should severe or extreme heatwave conditions be forecast to impact large geographical regions and/or highly populated regions and/or
• be expected to last longer than 48 hours.

The BoM will contact the Queensland Health Disaster Management Unit (HDMU) by phone and email. The BoM may also provide heatwave information in a ‘Weather Outlook Summary’ which is then issued from the SDCC. All HHSs and partner agencies will receive this summary from the SDCC via QH and through established networks of the Queensland disaster management arrangements (QDMA) networks.

HHSs will also receive notice of Queensland Health intentions and advice regarding risk and activation status and will in turn advise the HDMU, or SHECC when activated, of local intentions.

Ongoing liaison with local and district disaster management stakeholders will be coordinated by the relevant HHS.

3.2 Activation

This plan will be considered for activation if there is a widespread, or prolonged severe heatwave; extreme heatwave; significant impacts on infrastructure or at the request of affected HHSs.

Activation of this plan does not occur in isolation. The QHDISPLAN will be activated to enable activation of this plan. The Chief Health Officer and Deputy Director-General Prevention Division (CHO & DDG) may also activate the State Health Emergency Coordination Centre (SHECC) and establish an Incident Management Team (IMT) to assist with response coordination.

3.3 Triggers to activate the plan

Activation of this plan is based on forecasts provided by the BoM Heatwave Service for Australia. This service is publicly available on the BoM website and is monitored daily by HDMU when the service is operational.

Activation decisions are made using a standard risk assessment of likelihood and impact.

• Likelihood is determined by information received from the Heatwave Service.
  • Activation should be considered for severe and is suggested for extreme.
• Impact is determined by the size of the area potentially affected by the heatwave; population numbers and vulnerable groups within the potentially affected area and the expected duration of effect. As examples:
  • A small, localised extreme heatwave in an unpopulated area would be unlikely to warrant activation.
  • A widespread, prolonged severe heatwave in a heavily populated area would be more likely to result in activation.
  • A widespread, prolonged extreme heatwave in a heavily populated area would see the plan activated.

Local activation may occur without activation of this plan and activation decisions should be made on a similar decision matrix applied to a local level.

Note: Local heatwave response plans can be activated without activation of this plan. It is suggested that local plan activation be considered for severe, and should occur for extreme, heatwaves.
3.4 Notification

Should this plan be activated the Department of Health (the Department) will notify:

- internal to Queensland Health:
  - the Director-General and Department Deputy Directors-General
  - relevant areas of the Department of Health
  - all HHS Chief Executives and Disaster/Emergency Management Coordinators
  - the Commissioner, Queensland Ambulance Service (QAS)
- external to Queensland Health:
  - the SDCC Watch Desk by email and telephone (the SDCC will then issue advice to partner agencies through normal communication channels)
  - the community through the Department of Health’s communications strategy in partnership with the SDCC.

The HHS Disaster or Emergency Management Coordinator will ensure notification is made to:

- senior HHS staff
- all health facilities and staff within their HHS (if local activation and impact)
- all local healthcare stakeholders such as private hospitals, aged care facilities, Primary Health Network (General Practice)
- HHS local and district disaster management group members, who will in turn ensure the disaster management group is aware.

Note: The HHS is also required to notify SHECC, relevant Local Disaster Management Groups (LDMGs) and District Disaster Management Groups (DDMGs) of any local or district heatwave management plan activations.

3.5 Roles and Responsibilities

The Department is responsible for:

- maintaining situational awareness of potential heatwaves conditions via the BoM Heatwave Service
- development and maintenance of state heatwave planning and communications arrangements
- 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
- undertaking risk assessments where impacts on utilities are significant and provision of health risk advice to the SDCC
- identification of vulnerable groups and consideration of these in arrangements and public information strategies
- development of messaging while ensuring alignment with BoM as part of a broader whole of government communication strategy
- sharing of information with HHS, QAS and partner agencies through usual networks and SDCC
- support for HHS in the care and safety of staff and patients and the community
- care and safety of patients for functions where the Department has direct care responsibilities
- ensuring the welfare and safety of staff.

HHSs are responsible for:

- maintaining situational awareness of potential heatwaves conditions via the BoM website, SDCC and HDMU communications
- 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 impact
- sharing of information from SHECC to internal HHS stakeholders, to external stakeholders via LDMGs and DDMGs, and the community via existing health networks (led by Public Health Units (PHU) in most HHSs).
- liaison with local government, utilities, organisers of local mass gathering events where patrons may be affected by heat (with QAS), energy suppliers and other relevant stakeholders to address emerging public health risks (led by PHU in most HHSs)
- aligning with Department and BoM messaging as part of broader communication strategy
- helping to identify local vulnerable groups, in collaboration with disaster management groups, and consideration of these in arrangements
- care and safety of patients and consumers (any surge of which would be managed in accordance with existing plans)
- ensuring the welfare and safety of staff
- providing situational awareness and reporting to HDMU about preparedness, response activities and community impacts prior to, during and following a heatwave event.

**QAS is responsible for:**

- maintaining situational awareness of potential heatwaves conditions via the BoM website, SDCC and HDMU communications
- development and maintenance of heatwave planning 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 impact
- liaison with organisers of mass gathering events where patrons may be affected by heat
- sharing of information with stakeholder agencies and the community via existing networks
- aligning with Department and BoM messaging as part of broader communication strategy
- care and safety of patients (any surge managed in accordance with existing plans)
- ensuring the welfare and safety of staff.

**The Department’s Strategic Communications Branch is responsible for:**

- maintaining situational awareness by monitoring BoM, SDCC and HDMU communications
- developing a public messaging strategy in alignment with the BoM and in collaboration with HDMU and the Health Protection Branch
- managing specific requests from the media for media releases and interviews
- sharing Queensland Health messaging with the HDMU, HHSs, the QAS and partner agencies through usual networks and the SDCC
- ensuring the distribution of messaging to vulnerable groups across Queensland through health communications networks and the SDCC.

**Other Queensland disaster management agencies are responsible for:**

- maintaining situational awareness of potential heatwave conditions via the BoM website and SDCC communications
- 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.

Roles and responsibilities specific to communication are included in the Heatwave Response Communications Protocol, which is a companion document to this plan.

QAS arrangements for heatwave management are outlined in the QAS Heatwave Response Plan, which is a sub-plan to the QAS State Major Incident and Disaster Plan.
4. Prevention and Preparedness

4.1 Prevention

Discussions about the management of climate change aside, heatwaves cannot be prevented. However, the impacts of heatwaves can be mitigated through activities that prevent exposure to the effects of heatwave. Examples include:

• design improvements to infrastructure to better allow heat management strategies
• prepared communities and response agencies and arrangements in place
• a clear understanding of hazards, and their interaction with vulnerable elements, which may include reducing exposure to heatwaves e.g. rescheduling events.

4.2 Preparedness

Heatwave preparedness activities include public information, community and agency education and engagement, planning and arrangements, training and exercises.

4.2.1 Community Education and Engagement

Queensland Health, as the primary agency for heatwave, reviews and provides communications relating to the potential health impacts of heatwaves. Queensland Health works in partnership with whole-of-government stakeholders to develop and distribute mitigation and management strategies for the Queensland community, other government and non-government organisations. These strategies include:

• the inclusion of heatwave preparedness advice (e.g. self-management of heat stress, recognition of heat illness, food safety etc.) in whole-of-government summer preparedness campaigns
• participation in the “Get Ready” campaign and inclusion of heat messaging in summer preparedness
• development and provision of targeted information for vulnerable groups, and those who support, or care for people at risk of serious health effects from hot weather
• the provision of heat health and wellbeing advice sheets for the public, HHS and other agencies available on the Queensland Health internet and intranet sites, with links to these also available on the National Heatwave Service website.

4.2.2 Disaster management summer season preparedness

Heatwave preparedness activities are integrated with summer season preparedness activities which are common across all organisations that are part of the QDMA. This can include:

• activation of weather monitoring systems for the summer period and review of previous season monitoring and warning systems and arrangements
• review 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.

Queensland Health and HHSs should undertake these activities in the lead-up to the official commencement of summer on 1 November. However, given the BoM activation of the Heatwave Service in recent years has been in October, it is recommended these activities be undertaken as early as possible.

If the seasonal outlook is particularly extreme, Queensland Health will engage with stakeholders to review and strengthen arrangements for a multi-agency response and ensure currency of all communication and information procedures and resources used for heatwave preparedness.
4.2.3 Training and exercises

Training and exercising for heatwave management is maintained through the disaster and emergency incident training and exercise requirements outlined in the QHDISPLAN, the Disasters and Emergency Incidents Health Service Directive and associated department Policy and Standard, and the Queensland Health Disasters and Emergency Incidents Training Framework.

Training and exercising for heatwave management should have a particular focus on surge capacity and business continuity, including planning for disruption to staffing levels.
5. Response

5.1 Response Strategy

The overarching Queensland Health response strategy for heatwave management includes:

1. reduction of harm to patients and the community, as well as reducing impact on the health system, by a proactive and scalable messaging campaign
2. identification of vulnerable groups with scalable strategies in place to support these
3. demand management linked to usual surge strategies
4. management of public health impacts of heat, and potential for increasing impacts due to effects on infrastructure, with particular focus on power and water
5. business continuity planning linked to usual arrangements for disruption to critical services or staffing levels

The scale of response is linked to the levels of heatwave as defined by the BoM Heatwave Service.

5.2 Coordination

Queensland Health, in consultation and collaboration with the BoM and SDCC, will establish state level briefings, provide consistent information for public messaging and advice for HHSs and other Queensland disaster management agencies. This will be done through normal Queensland Health channels and through the SDCC.

HHSs should ensure local and district disaster management groups are aware of and engaged with local heatwave plans or activities prior to an event, and that regular communications are maintained between HHSs and groups during preparedness, response and recovery.

5.3 Management

Approaching the different levels of heatwave (low intensity, severe and extreme) using a scalable risk profile enables tiered and compounding arrangements to manage heatwaves, with defined activation triggers and escalating activities dependent on required response levels.

5.3.1 Management intent

• The cornerstones of management of clinical effects consist of rehydration and cooling.
• Most people can manage within their own immediate environment – it is important that people either create (via air-conditioning, use of fans etc.) or move to (shopping centres, cinemas e.g. etc.) a cool environment.

Department-level activities will focus on:

• liaison with stakeholders at state level to engage these groups (e.g. emergency services agencies and other government departments, the SDCC, St John Queensland, Pharmacy Guild, Primary Health Networks, the Commonwealth Department of Health regarding aged care facilities, non-government organisations and partner agencies)
• ensuring distribution of messaging to vulnerable groups through the usual health media and communications networks and via the SDCC to disaster management groups
• monitoring and providing advice on the public health risks associated with heat, and the likelihood of escalating risks associated with heat effects on infrastructure
• supporting HHS by coordinating supply of additional resources, as needed to support business continuity.
HHS-level activities will focus on:

- ensuring distribution of messaging to patients and consumers within HHS through usual health networks and LDMG and DDMGs
- liaison with stakeholders in HHS area of operation to engage these groups (e.g. QAS, aged care facilities, private hospitals, primary health care, community health care providers, pharmacies etc.)
- management of any potential surge of patients in line with all hazard plans and consideration of specific clinical pathways and management plans for high risk groups
- liaison with local governments and other stakeholders relating to management of emerging public health issues.

Partner agency activities will focus on:

- ensuring existing response functions are prepared and able to be provided, as needed
- ensuring distribution of messaging to their workforce and identified vulnerable groups using existing Queensland Health messaging
- ensuring business continuity arrangements are in place.

5.4 Communication

Queensland Health communications arrangements for heatwave, and the roles and responsibilities of a multi-agency response, is provided in the Heatwave Response Communications Protocol. This is aligned with the different levels of heatwave to ensure a scalable and consistent approach to public information. A summary of this strategy is included in Appendix 4.

The BoM Heatwave Service for Australia will act as the primary warning service for heatwaves. Queensland Health will provide tiered, targeted messaging regarding health risks, preparedness and response activities, including those relating to potential public health risks. Agencies and disaster management groups should use the Queensland Health messaging and distribute through their networks and communities. In cases of extreme or catastrophic heatwave conditions, the SDCC may be requested to disseminate an Emergency Alert, dependent on the perceived risk and disruption to the community.

5.4.1 Public messaging

Five (5) key messages should be consistently delivered to the public by all agencies:

1. Have a plan.
2. Stay hydrated.
3. Stay out of the sun.
4. Keep cool.
5. Check on and look after others.

The risk of adverse clinical effects from the heat can be minimised by encouraging the population to:

- drink plenty of water and monitor themselves for signs of dehydration (e.g. dark urine)
- minimise physical activity
- check on those at higher risk (see list below)
- check if their home air conditioner works before a heatwave
- go to a public area which has air conditioning if they don’t have access at home
- plan around the heat and avoid being outside between 11 am and 3 pm
- avoid alcoholic, hot and sugary drinks
- take cool showers or baths
- wear light-coloured, loose-fitting clothes made from natural fibres
- cool the house by shading windows and shuttering curtains and opening windows at night, if it is safe to do so
- stay away from deceased animals and take precautions if handling sick or stressed animals.

A summary of all communications and response activities is provided in Table 6 below.
<table>
<thead>
<tr>
<th>Phase</th>
<th>When</th>
<th>What</th>
<th>Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention and Preparedness</td>
<td>Prior to summer (no heatwave)</td>
<td>Ensure heatwave plans updated</td>
<td>The Department; HHS; QAS; LDMGs to consider</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ensure BCP arrangements in place</td>
<td>All agencies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check messaging materials/resources (website content, information sheets, posters etc.)</td>
<td>The Department (Prevention Division &amp; Strategic Communications Branch)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identification of vulnerable groups and development of strategies to support</td>
<td>The Department; HHSs; QAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Surge strategies developed to manage increased demand (generic plus heatwave specific issues)</td>
<td>The Department; HHSs; QAS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appropriate clinical pathways and management plans for expected increases in mental health hospital admissions</td>
<td>HHSs (Mental Health Units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Review capacity of Public Health Units to manage public health effects and communicable disease outbreaks</td>
<td>The Department (Prevention Division) HHSs (Public Health Units)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prevention and mitigation roles as per SDMP</td>
<td>All agencies</td>
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<tr>
<td></td>
<td></td>
<td>Response functions as per SDMP planned and prepared</td>
<td>All agencies</td>
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<tr>
<td></td>
<td></td>
<td>Test communications and information flows and redundancies, and ensure all stakeholders are aware of and implement arrangements</td>
<td>All agencies included in the Heatwave Communications Protocol</td>
</tr>
<tr>
<td>Response</td>
<td>Alert</td>
<td>Ongoing messaging</td>
<td>The Department (Prevention Division &amp; Strategic Communications Branch) HHSs (Public Health Units)</td>
</tr>
<tr>
<td></td>
<td>Activation</td>
<td>Active messaging</td>
<td>The Department (Prevention Division &amp; Strategic Communications Branch)</td>
</tr>
<tr>
<td></td>
<td>(Lean forward or Stand up)</td>
<td>Liaise with HHS, PHUs on activation of local plans</td>
<td>HHSs (Public Health Units)</td>
</tr>
<tr>
<td></td>
<td>(Severe heat wave)</td>
<td>Liaise with organisers of community events</td>
<td>HHSs (Public Health Units)</td>
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<tr>
<td></td>
<td></td>
<td>Liaise with local government re:</td>
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<tr>
<td></td>
<td></td>
<td>• Food businesses</td>
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<tr>
<td></td>
<td></td>
<td>• Water/sewerage/utilities</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Local media messaging</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 Communications and response activities
<table>
<thead>
<tr>
<th>Phase</th>
<th>When</th>
<th>What</th>
<th>Who</th>
</tr>
</thead>
</table>
| **Response** | Liaison with SDCC watch desk though all phases as well as SDCC if activated | **Activation**  
(Lean forward or Stand up)  
(Widespread or prolonged severe heatwave or extreme heatwave, plus:  
- Loss of power  
- Other hazard e.g. Fire) | State-wide media messaging  
Liaise with organisers of mass or community events  
Liaise with local government re  
- Food businesses  
- Water/sewerage/utilities  
- Animal deaths  
Local media messaging  
Liaise with other agencies through public health or QDMA arrangements at each level  
- Safe Food Production Queensland (SFPQ)  
- Department of Agriculture and Fisheries  
- Department of Environment and Science  
- SEQ Water (if Brisbane)  
- Urban Utilities (if Brisbane)  
- Ergon and other power providers  
Re-supply of vaccines (if needed)  
Provide response functions as per SDMP  
Business continuity arrangements enacted as needed  
Debriefing and post disaster review  
Business continuity plans activated until business as usual reinstated | The Department (Strategic Communications Branch)  
SDCC and Queensland Government Crisis Communications Network  
HHSs (Public Health Units)  
The Department (Health Protection Branch)  
The Department (Communicable Diseases Branch)  
All agencies  
All agencies  
The Department; HHSs; QAS; All agencies  
All agencies |
| **Recovery** | Liaison with QRA and DRGs as per arrangements throughout and ISEM for review | **Widespread or prolonged severe heatwave or extreme heatwave, plus:**  
- Loss of power  
- Other hazard e.g. Fire) | Existing recovery roles as per State Recovery Plan and SDMP | All agencies |

Table 6 Communications and response activities
6. Recovery

Recovery and return to business as usual will depend on the impact from the heatwave on businesses and departments. Queensland Health will maintain a health response to areas of the community that continue to be at-risk as the heatwave event abates and will continue to provide advice on treatment of common health effects resulting from the heatwave (e.g. heat stroke, dehydration). Queensland Health will also encourage stakeholders to consider the continued effects of heat on at-risk patients that may impact on their need for support.

Recovery from a heatwave event is managed in line with the five functional areas of the Queensland State Recovery Plan and may be at the state level, at a local or district level. This will depend on the severity level and geographical area of the heatwave, the corresponding disruption to communities, and the level of coordinated response required.

6.1.1 Debriefs and Post Disaster Review

An evaluation of the heatwave response should occur:

- after cessation of the heatwave emergency
- with data collected and analysed on those affected across all sectors i.e. morbidity/mortality data, infrastructure or essential service impact etc.
- if required after feedback from other agencies
- in consultation with all partner agencies.

Where local heatwave plans have been activated at the HHS level, it is the responsibility of the relevant HHS Chief Executive (or delegate) to ensure a timely debriefing of all involved functions and agencies, in conjunction with respective disaster management groups where applicable. Debriefing should be conducted in accordance with the Queensland Health Briefing and Debriefing Guideline. The HHS Chief Executive may also be requested to forward a report to the CHO & DDG Prevention Division if a state level post event analysis of an event is conducted.

This will generally occur for heatwave if there are widespread health impacts, either on the community or the health system, or if a heatwave has compounded on another event such as a cyclone or bushfires.

Where this plan has been activated, HDMU will ensure the debriefing of all participating staff and agencies within a reasonable timeframe following the stand down of the response. Following each summer period, the BoM will evaluate the Heatwave Service maps for accuracy. The service is expected to be reviewed in conjunction with health and emergency sector stakeholders to consider the relevance and utility of these assessments and forecast maps.
Appendix 1 - The Heatwave Service for Australia

The BoM heatwave forecast product is then generated by comparing local EHF’s to historical centile thresholds of EHF’s calculated for the same local area, and defining temperatures as being in ‘No Heatwave’, ‘Low-intensity heatwave’, ‘Severe Heatwave’ or ‘Extreme Heatwave’ based on those thresholds.

There are 2 sets of maps as shown in Figures 1 and 2.

- The Heatwave Assessment consists of a panel of two maps across Australia for the previous two three-day periods.
- The Heatwave Forecast consists of a panel of five maps across Australia for the next five three-day periods.

Understanding Heatwave Prediction Limitations

The maps provided by the Heatwave Service will show a reduced severity level or remove the indication of heatwave before the heatwave actually ends. This occurs because the maps are calculated across today, tomorrow and the next day. If the temperature is lower on the last day(s) then the map will indicate a lower risk despite unusually hot conditions being present for the first day or two. The Heatwave Assessment will show how heatwaves are finishing due to the combination of recent days with the current forecast days.

To find exact temperatures there is still a need to refer to local BoM products for information on how hot each day and night will be during the three-day period.

Figure 1 Example of Heatwave Service assessment map

Figure 2 Example of Heatwave Service forecast map
Understanding the impact of heatwaves on health

Data from Queensland University of Technology suggests that human morbidity and mortality due to heat will increase in the order of 10 per cent once the 90th centile temperature is reached, with further increases in temperature leading to further quantifiable increases in both morbidity and mortality.

As a crude model, if daily maximum temperature is assumed to take a normal distribution around a mean daily maximum temperature, then morbidity and mortality appear to start to rise in a detectable fashion once daily maximum temperature reaches the 90th centile of this normal distribution. The 90th centile temperature is the temperature which 90% of temperatures measured on that day, would be expected to be below, with only 10% of measured temperatures exceeding it. In Figure 3, the white shaded area represents 90% of temperatures for that day, whilst the red shaded area represents the remaining 10%. This 10% would represent a ‘low intensity heatwave’. The top 2% and 1% would represent a ‘severe heatwave or ‘extreme heatwave’ respectively.

Figure 3 The 90th Centile Temperature

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Appendix 2 - Effects of a Heatwave

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 seeking shade or other cooler locations. This is described in Figure 4.

Figure 4 Human responses to high temperature. Source: Queensland University of Technology

Vulnerable Groups

The susceptibility to the effects of high ambient temperatures during heatwaves can be increased by factors affecting behaviour; that cause additional increases in heat gain; interfere with sweating; reducing plasma volume or decrease cardiac output.

These are summarised by the National Climate Change Adaptation Research Facility (NCCARF) as factors influencing exposure; sensitivity and adaptation (see Figure 5).

Belonging to more than one at-risk group may significantly increase the risk to that individual of heat illness, since several of the risk factors may increase the effect of others. Some people may have multiple factors contributing such as elderly people with co-existing heart disease (decreased cardiac output, reduced plasma volume and ability to sweat due to medications), who are also reluctant to use air conditioning because of costs.

Those people especially at risk include the elderly, the very young, people who work outdoors, low socio-economic households, those with chronic disease conditions or other compromised physical and mental wellbeing, and potentially those from non-English speaking backgrounds or cultural groups where practices may increase exposure to heat impacts.

Figure 5 Multitude of factors that create vulnerability to extreme heat events. Source: NCCARF

Exposure

Vulnerable groups living in cities are particularly at risk due to the urban heat island effect, which occurs because of a decreased amount of vegetation and increased areas of dark surfaces in urban environments, in addition to the heat produced from vehicles and generators. This effect is generally more prominent during the night than the day. This increases the likelihood of extreme high minimum temperatures for a more prolonged time and affects people’s health by causing heat stress and, under very severe conditions, death from the cumulative heatwave effects.

Working or being active 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 together:

- 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.

Sensitivity

The way heat affects people varies from person to person and is influenced by:

- general health as a low level of fitness may make people more susceptible to feeling the extremes of heat
- age (particularly for people about 45 years and older)
- body weight (being overweight or obese can make it more difficult to cope with heat)
- certain prescription and illicit drug use which can reduce the ability to sweat, reduce plasma volume, change behaviours or directly increase temperature. Examples include:
  - allergy medications, such as antihistamines
  - some blood pressure and heart medicine, such as beta blockers/vasoconstrictors
  - anticonvulsants
  - thyroid medications, such as thyroxine
  - diuretics
  - antidepressants and antipsychotics
  - alcohol and illicit drugs (e.g. amphetamines)
- medical conditions can also increase a person’s susceptibility
  - people with conditions such as heart disease, high blood pressure, pregnancy, respiratory disease and diabetes may need to take special precautions
  - people with some types of skin diseases and rashes also may be more susceptible
  - those with acute illness or infections that cause dehydration or fever
  - those with conditions that impair sweating, including skin disorders, congenital impairment of sweating, cystic fibrosis, quadriplegia and scleroderma
- other factors include circulatory system capacity, sweat production and the ability to regulate electrolyte balance all of which can be influenced by both acute and chronic medical conditions and medications
- their level of heat acclimatisation which generally takes two to three weeks.

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The way in which people respond to heat is also influenced by their environment including preventive factors such as urban design; socio economic factors that influence housing design, cost of air conditioning, and employment; as well as health system access.

Factors that reduce the effectiveness of heatwave warnings such as language barriers may place some individuals at risk.

People who may have any level of impaired mobility or an incapacity to self-manage, including:

- the aged and frail, especially those living alone
- babies and young children
- the obese
- pregnant and lactating mothers
- those with physical disabilities
- those with a cognitive impairment or mental illness.

**Adaptive Capacity**

Access to air conditioning is a major part of planning for most people and communities. This may occur through individual behaviours such as people going to shopping centres or through community arrangements where places of ‘heat refuge’ such as air-conditioned libraries are established for people to use during heatwaves.

During heatwave conditions this allows the individuals body temperature to return to normal and power failure is often linked to increased heatwave morbidity and mortality.

Loss of power during heatwave can also cause significant and rapid increases in temperatures within many buildings, as the design standards rarely make provisions for passive cooling or ventilation. For example, windows are not able to be opened, which creates serious concerns for providing relief from heat during long term power disruptions.

Back-up power may also not be reliable during heatwave events due to a range of factors including precursor events or system faults.

This may affect for example office blocks, hotels, schools, and prisons with hospitals and aged care facilities no exception to this.

**Direct Clinical Effects of a Heatwave: Heat Illness**

Common clinical effects of a heat illness include:

- heat rash, also known as prickly heat, consists of small, red, itchy or prickly skin lesions due to plugging of sweat glands
- heat cramps – 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 leading to a change in mental status, which may include an altered level of consciousness or seizures. The presence, or absence, of sweating is a poor guide to diagnosing heatstroke. Specifically, sweating does not exclude hyperthermia.

Remember also that not all people who present with hyperthermia during a heatwave have heat illness. The most common causes of hyperthermia remain fever due to infection, 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.

Most people can be managed in their immediate environment but immediate referral to medical care should be considered for anybody who fails to improve with fluids and cooling; has a change in mental status; has obvious significant sequelae such as seizures, cardiac arrhythmia or cardia arrest.
People experiencing heat-related symptoms must be moved to a cool environment as soon as possible or their surrounding environment cooled. Heat loss should be encouraged and supported with urgent cooling without causing shivering, which may actually increase core body temperature.

Public health effects of a heatwave

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

- Loss of power also results in a loss of refrigeration of food, increasing 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.
- Loss of power can also 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.
- Sewerage pumps may also cease to operate, leading to sewage overflows into the environment which may require advice to the community to avoid at risk areas.

Hot weather also increases the risk of food borne disease due to stresses in food production, particularly for chicken and eggs. Salmonella outbreaks are more common in hot months. These risks can be mitigated through more careful food handling practices.

Heatwaves can impact animals and the associated human interactions with stressed, sick or deceased animals may lead to the spread of communicable diseases and other potential public health risks associated with mass animal death and carcass clean-up.

Longer term heatwaves also have the potential for a change in distribution and increase in vector borne diseases, such as Dengue and Ross River fever.

Mental health impacts of a heatwave

Mental, behavioural, and cognitive disorders have been shown to be triggered or exacerbated during heat waves, predisposing individuals to heat-related morbidity and mortality.

Acute effects – direct mental health impact

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

- Specific illnesses that have shown increased hospital admissions during heatwaves include symptomatic mental disorders, dementia, mood (affective) disorders, neurotic, stress-related, and somatoform disorders and disorders of psychological development.
- Fluctuations in weather have been noted to 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.

Acute effects – increased vulnerability of those with mental health disorders

Many medications used in psychiatry increase vulnerability to heat-related morbidity by altering the body’s ability to thermoregulate. Drugs such as antipsychotics, anticholinergics, antidepressants, sedatives, and mood stabilizers that impair sweating and/or increase heat production are used in the treatment of such conditions as dementia, Alzheimer’s disease, psychosis, 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 Alzheimer’s disease, dementia, senility, psychosis, schizophrenia and developmental disabilities.

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Longer term effects

The effects of sustained heat and humidity, accompanied by drought, water restrictions, bushfires and power outages are likely to have marked effects on the mental health of both rural and urban communities, with possible increases in the incidence of episodic or chronic stress, despair and depression, and health-damaging personal behaviours.

- There is also a perception of ‘inherent resilience’ within regional Queensland communities, often depicted as ‘stoic’ and ‘well-adapted’, to the impacts of heatwave. While many of these communities have good levels of resilience to heatwave, this depiction can hinder the development of effective adaptation strategies.

Non-clinical effects of a heatwave

Heatwaves can have a range of economic and planning impacts across a broad range of sectors, including health care, transport, emergency services, energy and agriculture. Impacts to these sectors may also have an effect on responding to people in need.

Examples of non-clinical effects of heatwaves include:

- Power outages—heatwaves often lead to electricity spikes due to increased air conditioning use, which can cause power outages, thereby making it even harder for the population to stay cool. The 2009 southeast Australia heat wave caused Melbourne to experience major power disruptions which left more than 500,000 people without power as the heatwave damaged transformers and overloaded the power grid.

- Telecommunications services – power disruptions and heat stress on kerbside and on-premise telecommunications equipment can result in disruptions to fixed line telephone and internet services in extreme cases. Prolonged power outages may reduce the ability to maintain charge on mobile phones and data devices.

- Fires—if a heatwave occurs during a drought and dries out vegetation it can contribute to bushfires. Heatwaves can also cause roads and highways to buckle, water lines to burst and power transformers to explode, causing fires.

- Excess heat may increase psychological stress to a degree, which in turn can affect performance and is also associated with an increase in violent crime and domestic violence.
Appendix 3 - Communication strategies

While the entire community should be informed, groups that have increased vulnerability during heatwaves should be directly targeted by public messaging and education:

Strategies (Examples only)

Community information
• Awareness of predicted heatwave.
• Advice on preventive actions (see public messages).
• Targeted messages to high risk groups with specific advice and tools designed to reach these groups (e.g. community newsletters, aged care homes, translations).

General Practitioner and Pharmacist Engagement
• Ensure consistent advice.
• Encourage pre-season review of vulnerable patients.

Aged Care Facility Liaison
• Ensure consistent advice.
• Encourage pre-season review of vulnerable patients.
• Ensure strategies in place for local cooling.

Community Health Liaison
• Ensure consistent advice.
• Encourage pre-season review of vulnerable patients.
• Consider welfare checks of vulnerable clients.

Agency / Organisation Liaison
• Ensure consistent advice.
• Planning of events (sports, concerts).
• Ensure strategies in place for local cooling for facilities such as prisons.
• Consideration of shopping centres as ‘places of heat refuge’ based on normal behaviours and how to best support this (in conjunction with Council).
• Consideration of other options such as movie theatres, ice rinks etc. (anywhere air conditioned).

Council Liaison
• Ensure consistent advice.
• Consider WHS opportunities across local industry.
• Access to communication strategies through LDMG.
• Consideration of vulnerable group register in LDMG.
• Consideration of local activities and behaviours that help access to cooler environments (see above re shopping centres, movie theatres).
• Consideration of local transport options in conjunction with these (bus air-conditioning, service schedule etc.).

Hospital and Health Services
• Ensure consistent advice.
• Pre-season screening of potentially vulnerable patients (Clinics, ED presentations).
• In season advice included for potentially vulnerable patients (Clinics, ED presentations).
• Consider welfare checks of vulnerable clients (e.g. mental health outreach services).
• Engagement with LDMG re vulnerable group register.
• Engagement with Council and local organisations to support local behaviours that improve access to cooling.
• Ensure BCP arrangements in place to support cool environment in heatwave (generators, priority if grid overload).
• Provision of health spokesperson for activation.

Department of Health
• Development and maintenance of community advice and information material.
• Provision of spokesperson for state wide activation.
• Support for HHS in their activities.
• Consideration of state wide strategies based on local behaviours.
• Engagement with state and national level groups such as GPs, Pharmacists, Aged care, Government agencies etc.

Heatwave Management Sub-Plan, June 2019
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BoM</td>
<td>Bureau of Meteorology</td>
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<tr>
<td>CAWCR</td>
<td>Centre for Australian Weather and Climate Research</td>
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<tr>
<td>CHO &amp; DDG</td>
<td>Chief Health Officer and Deputy Director-General Prevention Division</td>
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<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
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<tr>
<td>DDMG</td>
<td>District Disaster Management Group</td>
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<tr>
<td>The Department</td>
<td>The Department of Health (Qld)</td>
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<tr>
<td>EHF</td>
<td>Excess Heat Factor</td>
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<tr>
<td>HDMU</td>
<td>Health Disaster Management Unit (Department of Health)</td>
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<tr>
<td>HHS</td>
<td>Hospital and Health Service</td>
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<tr>
<td>HSD</td>
<td>Health Service Directive</td>
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<td>IMT</td>
<td>Incident Management Team</td>
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<td>LDMG</td>
<td>Local Disaster Management Group</td>
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<tr>
<td>NCCARF</td>
<td>National Climate Change Adaptation Research Facility</td>
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<tr>
<td>PHU</td>
<td>Public Health Units</td>
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<tr>
<td>PPRR</td>
<td>Prevention, Preparedness, Response, Recovery (the comprehensive approach to disaster management)</td>
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<tr>
<td>QAS</td>
<td>Queensland Ambulance Service</td>
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<tr>
<td>QFES</td>
<td>Queensland Fire and Emergency Services</td>
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<tr>
<td>QHDISPLAN</td>
<td>Queensland Health Disaster and Emergency Incident Plan</td>
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<tr>
<td>QRA</td>
<td>Queensland Reconstruction Authority</td>
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<tr>
<td>QSDMP</td>
<td>Queensland State Disaster Management Plan</td>
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<tr>
<td>RSPCA</td>
<td>Royal Society for the Prevention of Cruelty to Animals</td>
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<tr>
<td>SDCC</td>
<td>State Disaster Coordination Centre</td>
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<tr>
<td>SDCG</td>
<td>State Disaster Coordination Group</td>
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<tr>
<td>SHC</td>
<td>State Health Coordinator</td>
</tr>
<tr>
<td>SHECC</td>
<td>State Health Emergency Coordination Centre</td>
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<tr>
<td>SRG</td>
<td>State Recovery Group</td>
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