Tasmania

Tasmanian Public Health Emergencies Management Plan

Heatwave Incident Associate Plan

Issue:	Issue 2.1
Approved:	 Dr Roscoe Taylor
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Section 1 Overview

1.1 Glossary

Table 1 Terms

Term	In the context of this plan, this term means:
Mean forecast temperature	A mean forecast temperature is the average of the forecast maximum and forecast minimum temperature for any given day in a given location.

1.2 Acronyms

Table 2 Acronyms

Acronym	Stands for:
AT	Ambulance Tasmania
BOM	Bureau of Meteorology
CEO AT	Chief Executive Officer (Ambulance Tasmania)
DHHS	Department of Health and Human Services
DMC AT	Duty Manager – Comms (Ambulance Tasmania)
DPEM	Department of Police and Emergency Management
DPH	Director of Public Health
ECC	Emergency Coordination Centre
OCMO	Office of the Chief Medical Officer
PEHS	Public and Environmental Health Service
PHE	Public Health Emergency
PHEOC	Public Health Emergency Operations Centre
PHW	Population Health and Wellbeing
SCC	State Crisis Centre
SEMAG	Security and Emergency Management Advisory Group
SES	State Emergency Service
SHHSEC	State Health and Human Services Emergency Committee
SOP	Standard Operating Procedure
TASPOL	Tasmania Police
TEMP	Tasmanian Emergency Management Plan
THO	Tasmanian Health Organisation
TPHEMP	Tasmanian Public Health Emergencies Management Plan
UTAS	University of Tasmania

1.3 Introduction

1.3.1 Aim

This plan describes the governance and emergency management arrangements and responsibilities for a coordinated response by various agencies to a heatwave incident.

1.3.2 Scope and Application

This plan applies to emergency management arrangements for a heatwave incident that constitutes a public health emergency (PHE), or imminent threat of a PHE, as defined in the Tasmanian Public Health Emergencies Management Plan (TPHEMP).

In broad terms, a heatwave occurs when the minimum and maximum temperatures are higher than at nearly any other time for that particular location. A heatwave warning is issued when the forecast shows that this is likely in the next few days.

For the purpose of this plan, a heatwave incident is defined as when the 3-day mean forecast temperature for any location in Tasmania exceeds a trigger threshold for that area.

Trigger thresholds occur at two levels.

1. 'Severe': Occurs when the 3-day mean forecast temperature for a given area of the State exceeds the historical 99th percentile mean temperature for that area.
2. 'Extreme': Occurs when the 3-day mean forecast temperature for a given area of the State exceeds the historical 99.5th percentile mean temperature for that area.

Trigger thresholds and the mechanisms of how they are determined are further outlined in Section 3.3.

Heatwaves have a number of negative consequences for human health. These range from symptoms of dehydration and heat cramps, to heat exhaustion and heatstroke (a life-threatening medical emergency). Heat may also worsen the condition of someone who already has a medical or chronic health condition. Extreme heat is responsible for more deaths in Australia than all other natural disasters.

Although relatively common in some parts of Australia, heatwaves are a less common occurrence in Tasmania. Heatwaves at the 'severe' level occur on average two to three times per year in Tasmania, while heatwaves at the 'extreme' level occur once every two years on average.

In the future, rising air temperatures and greater numbers of more intense periods of heat are forecast to be more common in Tasmania's climate.[1] Several other Australian jurisdictions that more regularly experience heatwaves have had heatwave emergency plans in place for some time.

Particular populations are more vulnerable than others to the effects of extreme heat. Identified vulnerable populations include:

- older people, particularly the frail or over 65
- babies and young children
- pregnant women
- those who live on their own or who don't live close to other people
- people who work outdoors, or who are physically active (gardeners or manual workers)
- people with a serious chronic health condition (heart disease, breathing problems, diabetes, serious mental illness, or those who are very overweight)

[1] White, C et al. 2010, *Climate Futures for Tasmania: Extreme events technical report*, Antarctic Climate and Ecosystems Cooperative Research Centre, Hobart, Tasmania.

- people with dementia or Alzheimer's disease
- people taking certain types of medications, including those that affect sweating and body temperature
- people who have difficulty keeping cool (for example, those with a physical disability)
- a person with a high temperature from an existing infection
- anyone who is confined to bed.

There are several factors that make Tasmania's population particularly at risk of heatwaves. For example, the percentage of elderly in the total Tasmanian population is much higher than in other jurisdictions (19% of the population of Tasmania is over 65 years of age, compared to 16% for the Australian population). In some regions of the state such as the East Coast, this figure increases to 22% of the total population. This is particularly concerning given that the East Coast region is not only projected to experience a greater rise in temperature than other regions of the State, but experiences limited access to health services when compared to other population centres in the State. Tasmania also experiences proportionally higher rates of those living with health risk factors and chronic health conditions than other jurisdictions.

The risk (both in terms of likelihood and consequences) of adverse effects from extreme temperatures relates to human physiological mechanisms for thermal adaptation. The threshold temperature for increases in heat-related mortality depends on the local climate and is higher in warmer locations. Conversely, residents of areas with generally colder climates such as Tasmania are more sensitive to hot weather than other hotter areas of Australia.

In addition, given the cooler conditions that are normally experienced in Tasmania, coupled with the usual wide variability in temperature over a short period of time, residents of Tasmania may not be able to adapt quickly to extremely hot weather. A four- to six-week period is normally required for physiological adjustment to heat. Tasmania's geography makes a climate pattern of gradual heat increase over summer unlikely.

In summary, this plan aims to reduce the risk of adverse health effects to vulnerable groups in the event of a heatwave in the State.

This plan does not cover the response to:

- other emergencies that result as a consequence of or in conjunction with a heatwave incident (for example, bush fires, power outages, infrastructure breakdown, food safety incidents)
- other extreme weather events associated with the same weather pattern (for example, storm surges or excessive wind).

Other hazard specific emergency management plans under the Tasmanian Emergency Management Plan (TEMP) come into effect in these events.

Section 2 Governance and Management

2.1 Roles of Government and Emergency Management Partners

A number of agencies have an identified interest in the emergency management of a heatwave event. These include:

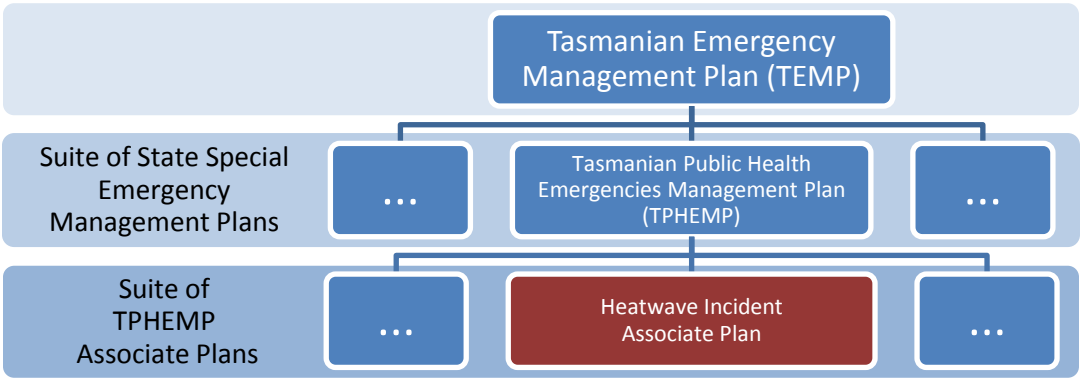
- Department of Health and Human Services (DHHS)
    - Population Health Services (including the Office of the Chief Medical Officer (OCMO), Population Health and Wellbeing (PHW) and Public and Environmental Health (PEHS))
    - Ambulance Tasmania (AT)
- Tasmanian Health Organisations (THOs)
- Department of Police and Emergency Management (DPEM), including the State Emergency Service (SES)
- Local Councils - assistance with identification of vulnerable groups
- Bureau of Meteorology (BOM) - assistance with identifying the probability that trigger thresholds will occur.

2.2 The Legal Framework

The *Emergency Management Act 2006* and the *Public Health Act 1997* provide the legislative basis for emergency management in Tasmania in relation to the health system.

A heatwave is not a specific hazard as identified under the TEMP, however severe and extreme heatwave incidents fit under the definition of a public health emergency, and therefore are identified under the TPHEMP.

This plan fits under the TEMP and TPHEMP structure as follows:



Most other jurisdictions affected by high summer temperatures have extreme heat or heatwave response plans in place. However there is no national legislation covering heatwave incident emergencies, and no national definition of a heatwave. A national heatwave mapping system covering all Australian jurisdictions was piloted by the BOM over the 2013-2014 summer season, and is currently under review. It is expected this system will continue to operate for the 2014-2015 summer season. This system operates as a mapping system only and does not generate a warning or precede jurisdictional action.

2.3 Current Management Responsibilities

Table 3 DHHS and THO Emergency Management Roles and Responsibilities

Operational Unit	Roles and Responsibilities
Population Health Services (OCMO, PHW, PEHS)	• Assume overarching responsibility for preparedness and response to a heatwave incident • Determine level of public health warning issued • Provide public health information and resources • Media liaison • Develop and maintain a coordinated and systematic approach to emergency management in the health and human service sector in Tasmania • Contribute to recovery activities • Liaise with other units/agencies for assistance and information sharing • Specialist emergency management advice
Ambulance Tasmania	• Casualty care, transport and registration • Medical logistics (out of hospital response) • Provision of some health emergency communications
Tasmanian Health Organisations	• Hospital management of patients • Community care response for chronic disease patients

Section 3 Emergency Management Arrangements

Section 3.1 Prevention and Mitigation

3.1.1 Current Arrangements and Elements

A heatwave incident cannot be prevented. However, DHHS has undertaken activities designed to mitigate the consequences of a forecast heatwave incident, with respect to reducing mortality and morbidity in vulnerable populations.

a) **Heatwave incident alert system** – A heatwave incident alert system has been developed in conjunction with the University of Tasmania. This system uses BOM data to perform daily calculations, and provide an alert if any area of the State is forecast to experience a severe or extreme heatwave. This system is key in response arrangements to a heatwave incident. For more information on the development of this system, see Appendix A.

b) **Public health messaging** – The DHHS website www.dhhs.tas.gov.au/peh/alerts/standing_health_alerts/extreme_heat provides a variety of public health information on preparing for and coping in a heatwave incident, with specific emphasis on vulnerable groups (see 1.3.2). This information is promoted on a number of related public websites, including the Tasmanian Government's TasALERT website (www.alert.tas.gov.au). A Communications Strategy (see Appendix B) exists to maintain links with various media outlets, and other health service providers, encouraging the general public to make use of this information both before and during a heatwave incident. This information is designed to assist individuals to prepare for and build resilience to heatwave events. Twitter is also available as a tool for information dissemination.

c) **Prior incidents** – Previous incidents related to bushfire response has given the opportunity for consideration of a heatwave incident by Population Health Services, AT and THOs. Extreme temperatures experienced in early January 2013, which were also accompanied by severe bushfires across South East Tasmania, gave rise to prioritisation of this plan.

d) **Accompanying incidents** – It is most likely that a heatwave event in Tasmania will be accompanied by an increased risk of bushfires. Bushfire emergency management arrangements will also come into effect at this time, and response procedures may overlap. It is likely that a heat warning, if issued, will occur before a bush fire alert is issued.

Section 3.2 Preparedness

3.2.1 Current Arrangements

a. Networks and Support Arrangements – This plan has support from other state wide emergency planning committees, including the Security and Emergency Management Advisory Group (SEMAG) and the State Health and Human Services Emergency Committee (SHHSEC). Given the other consequences of heatwaves (for example, bushfire, power outages), it is likely that this plan will take effect when other emergency management plans (specifically bushfire plans) are underway or being considered.

b. Emergency Planning – THOs and AT will take action to ensure appropriate capacity arrangements for the event. TPHEMP provides overarching emergency planning arrangements.

c. Operational Preparedness – Key considerations for capacity and capability include:

- Resources within Population Health Services may be limited if other incidents and emergency plans are in place concurrently (for example, bushfire).

- Heat warning alerts will be issued shortly after 10:00am daily. There is 24-hour access to BOM meteorologists for updated forecasting information.

d. Administration Systems

- Information Management – The heat alert warning system is maintained by the University of Tasmania (UTAS), with funds provided by Population Health Services.
- Warnings and Public Information – the Public Communications Strategy (Appendix B) for this incident type outlines key public and media communication procedures in the event of a heat warning being triggered. This plan describes what information should be sent and to whom.

Section 3.3 Response

3.3.1 Overview

Figure 1 outlines the steps involved in determining if a heatwave alert is to be issued. This flowchart does not include specific response activities, which are activated if a heat alert is issued. The SOP related to this flowchart is found in Appendix C.

3.3.2 Command, Control and Coordination

The command, control and coordination arrangements for a PHE as described in the TPHEMP apply to this plan, with incident specific responses from Population Health Services, AT and THOs. It is likely that a heatwave incident will happen concurrently with other emergency responses (for example, bushfire), and these emergency responses will be similar and may overlap. It is therefore important that response agencies consider and plan for surge capacity for competing resources.

3.3.3 Emergency Powers and Authority

The *Public Health Act 1997* provides the legislative basis for PHE management arrangements including heatwave incidents in Tasmania, supporting the functions of the Director of Public Health (DPH).The emergency powers that may be invoked to respond to a heatwave incident and the authority to escalate response activities are in accordance with the arrangements described in the TPHEMP.

A heatwave response is triggered by temperature thresholds being forecast at any location in the State (see Section 1.3.2) and a risk assessment performed on the likelihood of that temperature being reached.

Figure I (below) outlines the steps to be performed for this risk assessment, with a description of those steps following this diagram.

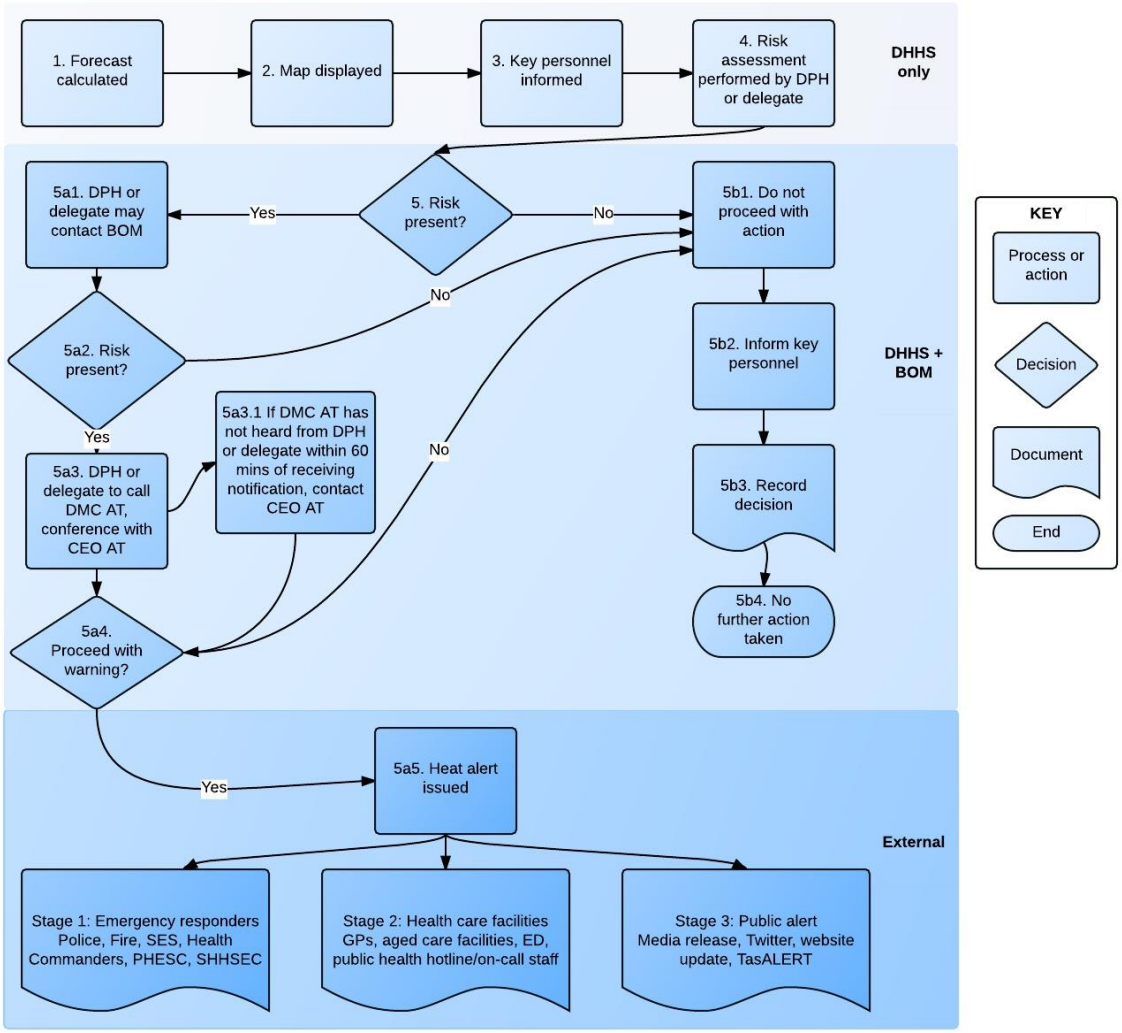


Figure 1: Decision and Response Action Pathway flowchart

1. At 10:00am daily, the heatwave alert system calculates a 3-day forecast for major population centres around Tasmania.
2. Severe and extreme heatwave regions are displayed at http://ecb.tasdendro.org/heat
3. Key personnel (see SOP 2.1) receive an SMS and email heat warning if severe or extreme heatwave regions are forecast.
4. Based on this information, a risk assessment is performed by the DPH or delegate. This will assess the extent, timeframe and location of the heatwave.
5. It is determined at this point if a risk requiring mitigation is present.

   5a. If risk present:

   5a1. The DPH or delegate may contact the BOM to elicit further specific information regarding the above factors. Other factors such as concurrent risks (for example, bushfires), previous recent heatwave events and extent of previous communications will be considered at this stage.

5a2. Based on the information gained through 5a1, It is further determined if a risk requiring mitigation is present.

If risk present:

5a3. The DPH or delegate contacts the DMC AT, to conference with the CEO AT.

5a3.1 If the DNC AT has not heard from the DPH or delegate within 60 minutes of receiving email notification, the DMC AT is to contact the CEO AT.

5a4. It is determined at this point if a warning is to be issued.

If warning is to be issued:

5a5. Proceed with issuing heatwave alert to stakeholders as defined in Communications Strategy and SOP.

If no warning issued:

5b1. Do not proceed with action

5b2. Inform key personnel (see SOP 2.1)

5b3. Record decision

If risk not present:

5b1. Do not proceed with action

5b2. Inform key personnel (see SOP 2.1)

5b3. Record decision

5b. If risk not present:

5b1. Do not proceed with action

5b2. Inform key personnel (see SOP 2.1)

5b3. Record decision

It is important to note that at all stages of the procedure, the DPH or delegate has discretionary power to proceed to the next step. This will be based on the risk assessment performed.

When a heat alert is already current, further heat alerts generated by the heat alert system will inform further action, at the discretion of the DPH or delegate.

3.3.4 Response Strategies

Table 4 Summary of Typical Response Actions

Escalation Stage	Response
Alert/Standby	• Gather intelligence that a heatwave incident is imminent, undertake risk assessment and make decision regarding alert to be issued (using SOP as per Appendix C) • Advise DHHS and emergency management stakeholders • Incident Management Team (IMT) may be established • Issue alert as described in Communications Strategy (Appendix B)
Level 1 Response	• DHHS Incident Controller established • If warranted, PHEOC established • Surge capacity by AT and THOs identified

Escalation Stage	Response
Level 2 Response	• Incident Controller establishes DHHS Emergency Coordination Centre (ECC) for state wide coordination of health response • Additional human resources mobilised as necessary
Level 3 Response *	• Incident Controller transferred to State Controller due to Whole of Government implications of incident • State Crisis Centre (SCC) activated • Federal Government or other jurisdictional assistance sought where necessary
Stand-down	• At any level, on assessment that Whole of Government and health response is no longer required, IMT, PHEOC, ECC and/or SCC stood down. Normal agency operations manage incident. Debrief and restock equipment.

* A Level 3 response would be highly unlikely for a heatwave incident alone.

3.3.5 Roles and Responsibilities

a The DPH or delegate will be appointed as the Incident Controller, and will establish the incident management team.

b PEHS to provide specialist public health advice as necessary.

c Population Health Services to provide specialist communications advice as necessary (for example, media alerts and coverage).

d BOM to provide updated forecasts as required (24-hour access).

e AT to ensure appropriate capacity arrangements for the event.

f THOs to ensure appropriate capacity arrangements for the event.

3.3.6 Other Response Elements

a Emergency Notification, Communications and General Public Information

Template media releases and health service provider notifications contained in the Communications Strategy are to be used as alert mechanisms. These are maintained and updated by the Project Officer as part of the Communications Strategy (see Appendix B). Public Health Hotline and on-call staff are to be notified and equipped with information as necessary.

In addition, advice will be provided to SHHSEC, PHESC and the TASPOL incident team.

b External Support Arrangements

BOM to provide additional forecasting information as required. Access to senior forecaster maintained throughout the incident.

Assistance from Tasmania Police, Tasmania Fire Service and other agencies follows standard protocols of the TEMP (if required).

c Finance and Records Management

The DPH can authorise expenditure during an emergency as necessary.

d Debriefs

To capture lessons learnt from the incident, debriefs will be coordinated and held by PEHS once the situation has resolved.

Section 3.4 Recovery

3.4.1 Current Arrangements and Elements

Relevant sections from the TPHEMP will be applied. Where a heatwave incident has involved high rates of illness or death, considerable attention to psychosocial elements of recovery will be necessary.

Section 4 Plan Administration

4.1 Plan Contact

This plan is maintained by Population Health Services, Department of Health and Human Services. Contact details:

a. Email: public.health@dhhs.tas.gov.au

b. Mail: Population Health Services, DHHS, GPO Box 125 Hobart, Tasmania 7001

4.2 Working Group

A working group has been identified to guide the work of this project. This group has representatives from PHW, OCMO, PEHS, and is jointly chaired by representatives from Ambulance Tasmania and Population Health Services.

Members of this working group are:

- Director of Public Health
- CEO, AT
- Manager, Aero Medical & Medical Retrieval, AT
- State Manager, PEHS
- Specialist Medical Advisor, PEHS
- Senior Public Health Advisor, PEHS
- Coordinator Emergency Preparedness, OCMO
- Project Officer, PHW.

4.3 Review Requirements and Issue History

This plan is to be approved by the Director of Public Health. It is to be reviewed every two years or after a major heatwave event.

This is the second issue of this plan.

4.4 Distribution List

This plan is issued electronically on the DHHS website, after it is approved.

4.5 Validation of this Plan

Arrangements in this plan will be validated within the two year review cycle by:

a. Conducting discussions with relevant parties

b. Conducting/participating in relevant evaluation or debriefs.

Section 5 Appendices

5.1 Associated Documents

5.1.1 Legislation

	Title	Agency
State	*Emergency Management Act 2006*	DPEM (SES)
	Public Health Act 1997	DHHS

5.1.2 Plans/Agreements

	Title	Custodian
State	Tasmanian Emergency Management Plan	DPEM (SES)
	SSEMP - Tasmanian Public Health Emergencies Management Plan (TPHEMP)	DHHS
	State Special Plan for Recovery	DPAC
Regional	Regional Emergency Management Plans (North-West, Northern, Southern)	

5.2 Other Appendices

Appendix A: Tasmanian Heat Wave History and Forecasting – Grant Williamson (UTAS) 2013.

Appendix B: Communications Strategy – Heatwave Incident.

Appendix C: SOP – Extreme Heat Warning.