OPERATIONAL DIRECTIVE

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Supersedes:

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Subject: HEATWAVE POLICY

This Policy only applies to Perth metropolitan area.

BACKGROUND

Extreme heat events are likely to become more common in WA as a result of climate change. The best estimate of average warming over Australia by 2030 is around 1.0 degree Celsius, with warming of around 0.7-0.9 degrees Celsius in coastal areas and 1-1.2 degrees Celsius inland. Associated with the warming is a projected major increase in the frequency of hot days and warm nights.¹

The increase in extreme heat events is projected to increase the number of heat related deaths. Mortality predictions sit at the extreme end of the impact scale but foreshadow the increase of minor heat-related health problems that will lead to increased hospitalisation, reduced quality of life and loss of productivity.² In Northern France in 2003, unprecedented high day and night time temperatures for a period of three weeks resulted in 15,000 deaths in excess of those who would have died in the next few weeks or months due to illness or old age.³ There is strong evidence that these summer deaths are extra deaths and are the result of heat-related conditions. These can be direct effects of heat or indirect effects via exacerbation of underlying cardiovascular, respiratory or renal disease, and increases in homicides and suicides. The rise in mortality as a result of hot weather often occurs within one or two days of the temperature rising.

The heatwave in Victoria in January 2009, when maximum temperatures were 12-15 degrees above normal for much of the state, resulted in a 25% increase in total emergency cases attended by Ambulance Victoria and 374 excess deaths (a 62% increase in all cause mortality).⁴

People gradually adapt to changing temperature. Thresholds vary across regions and risks to health appear to be greater earlier in the summer. There are indications that night time temperatures may be more important for impacts upon health than maximum day time temperatures.

AIM

The aim of this Operational Directive is to ensure that an efficient health response is activated to meet health disaster and emergency management requirements in response to a heatwave. The policy defines the roles and responsibilities of key Western Australian Department of Health agencies in mitigating the effects of a heatwave, especially on the most vulnerable people in the population.
DEFINITIONS

A heatwave is defined as a period of abnormally and uncomfortably hot weather, which could impact on human health, community infrastructure and services.\(^5\)

A heatwave is not defined on the basis of temperature alone. The factors that contribute to a heatwave are:

- the maximum day time temperature and the minimum night time temperature;
- the duration of the high temperatures;
- humidity and air quality;
- the availability of cooling facilities and power to operate the cooling facilities;
- urban and rural design; and
- local acclimatisation.

HEATWAVE THRESHOLD

Elevated night time temperatures during periods of hot weather in Australian cities are associated with increased morbidity and mortality.\(^6\) The lack of relief from the heat is particularly associated with increased mortality in the elderly.\(^7\)

The mean temperature is the average of the forecast daily maximum temperature and overnight minimum temperature. The method for calculating this temperature is outlined in Appendix 1. The heatwave threshold for the Perth metropolitan area is a mean temperature of 32 degrees Celsius.

COMPENSATED AND NON-COMPENSATED HEATWAVE

The ability of the population to mitigate the effects of extreme heat depends on the availability of functioning cooling systems.

- A compensated heatwave is one that occurs in the presence of fully functioning delivery of power
- A non-compensated heatwave is one that occurs at the same time as a reduction in power service delivery.

In the event of a non-compensated heatwave, the activation of the policy will occur at lower temperatures and the content of the communication material will reflect the lack of power and the need to use alternative methods of cooling.

ACTIVATION

On confirmation of an imminent heatwave by the Bureau of Meteorology (BOM), the State Health Coordinator (SHC) is responsible for authorising the activation of the Heat Wave Response Plan. The On-call Duty Officer is responsible for monitoring alerts from BOM and communicating this information to the SHC.

HEAT WAVE RESPONSE PLAN

1. ALERT

In the advent of a maximum temperature of 40 degrees Celsius or above in the Perth metropolitan area for one or more days, the heatwave response plan will be placed on alert. Non-metropolitan Public Health Units should determine the alert levels for their respective areas based on historical temperatures.
a. **State Health Coordinator (SHC)**

The SHC will:
- through the Hospital Emergency Operations Centre (HEOC), inform the Hospital Health Coordinators of the expected event; and
- with Public Affairs, promulgate public health messages on coping with heatwaves.

2. **STANDBY**

In the advent of a predicted mean temperature of 32 degrees Celsius or greater for one or more days in the coming one to six days, the heatwave response plan will be put on standby. Non-metropolitan Public Health Units should determine the standby levels for their respective areas based on historical temperatures, cooling availability and acclimatisation.

a. **SHC**

The SHC will:
- through the HEOC, inform affected public and private hospitals of the event, expected casualties and patient presentation monitoring requirements;
- with Public Affairs, provide media advice on how the general public should respond;
- liaise with the Western Australian Country Health Service (WACHS) on response required;
- liaise with Public Health Units on promotion of heat-related advice;
- through St John Ambulance, inform ambulance personnel of expected casualties and the need to review ambulance capacity and staff preparedness; and
- liaise with other Departmental and Government agencies to both inform staff and to identify vulnerable groups for whom they may have responsibility, such as aged care patients or those with a disability, who may require monitoring during the heat wave.

b. **Hospitals**

Hospitals will:
- identify and plan for staff requirements in the event of increased demand;
- ensure back-up power generation is tested and functional; and
- identify cool areas for patients.

3. **RESPONSE**

On the arrival of a predicted mean temperature of 32 degrees Celsius or greater for three or more days, the heatwave response plan will be put on response. Non-metropolitan Public Health Units should determine the response levels for their respective areas based on historical temperatures, cooling availability and acclimatisation.

a. **SHC**

The SHC will:
- through the HEOC, activate surveillance requirements, including the disaster tag, in affected public and private hospitals;
- with Public Affairs, provide media advice on both how the general public should respond and the Department’s response;
- liaise with WACHS on the response required;
- liaise with other Departmental and Government agencies to commence monitoring of vulnerable groups; and
• in the event of an extreme heatwave, involving either extreme temperatures, extreme demand on essential medical services or power or public transport failures, activate Westplan – Health.

b. Hospitals

Hospitals will:
• activate staff plans in the event of increased demand;
• implement surveillance of ED attendances and hospital admissions for heat-related illness;
• identify outpatient groups, such as dialysis patients, who may require further monitoring;
• monitor indoor temperatures four times a day and ensure temperatures are maintained below 26 degrees Celsius;
• inform HEOC immediately of any power, water or cooling issues; and
• identify cool areas for patients.

4. STAND DOWN

Once the heatwave has dissipated and hospitals have returned to normal functioning, the SHC will declare a stand down and contact the agencies activated.

IDENTIFICATION OF VULNERABLE GROUPS

The list of vulnerable groups is at Appendix 2. These groups should be considered in the development of media, monitoring and surveillance programs.

RELEASE OF INFORMATION

The DOH Public Affairs branch will work with the Disaster Preparedness and Management Unit (DPMU) to develop draft statements and guidelines prior to any heatwave.

The DOH Public Affairs branch will work with Local, State and Commonwealth government agencies, as well as non-government organisations, to coordinate the media response and release of advice to the public. This information should include:
• information about vulnerable groups;
• information about the effects of heat on health;
• advice on prevention of the effects of heat on the body; and
• advice on actions to take in response to symptoms due to heat exposure.

MONITORING, SURVEILLANCE AND REPORTING

The HEOC will be responsible for coordinating the collection of data during a heatwave. This data should include ambulance call-outs, ED attendances, hospital admissions and ICU admissions.

In the event of a heatwave that requires activation of the plan, the Disaster Preparedness and Management Unit is to produce an annual summary report.
MONITORING AND REVIEW

The Senior Policy Officer, Disaster Preparedness and Management Unit, is responsible for the monitoring and review of this document on an annual basis.

Mr Kim Snowball
ACTING DIRECTOR GENERAL
DEPARTMENT OF HEALTH WA

This information is available in alternative formats upon a request from a person with a disability.

References:
1. CSIRO (Commonwealth Scientific and research Organisation) and BoM (Australian Bureau of Meteorology), 2007. Climate change in Australia. Available from: www.climatechangeinAustralia.gov.au
CALCULATING THE MEAN TEMPERATURE

The mean temperature is calculated from the forecast daily maximum (in this case, Wednesday) and the forecast overnight temperature, which is the daily minimum for the following day (in this case, Thursday).

For example:

Perth

<table>
<thead>
<tr>
<th>Wednesday</th>
<th>Thursday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min: 20º C</td>
<td>Min: 26º C</td>
</tr>
<tr>
<td>Max: 40º C</td>
<td>Max: 35º C</td>
</tr>
</tbody>
</table>

Mean Calculation for Wednesday:

\[
\frac{40 + 26}{2} = 33º C
\]

The threshold for Perth is 32º C, so mean threshold will be exceeded.

This calculation will be repeated for each of the seven days in the forecast.
HEAT VULNERABLE GROUPS.

1. The over 65 year olds, especially:
   - those living alone or socially isolated or in a care home

2. The chronically unwell, including those with:
   - Heart conditions
   - Diabetes
   - Respiratory disease
   - Renal insufficiency
   - Parkinson’s disease
   - Severe mental illness
   - Impaired sweating, due to burns, skin or genetic disorders.

3. Those taking multiple medications, particularly:
   - Anticholinergics
   - Vasoconstrictors
   - Antihistamines
   - Diuretics
   - Psychoactive drugs
   - Antihypertensives

4. Those unable to adapt their behaviour to keep cool, due to:
   - Dementia
   - Disability
   - Being bedridden
   - Being babies and the very young
   - Substance abuse
   - Being very overweight or obese
   - Being a pregnant or breastfeeding mother.

5. Those impacted by environmental factors, including:
   - Aboriginal people, especially in remote areas.
   - Culturally and linguistically diverse people, who may have limited understanding of the impacts.
   - Other acutely unwell patients living in urban heat islands, such as the Perth Central Business District, where the temperature gradient across urban areas may be higher by several degrees Celsius due to reduction in green space, high building density and the nature of street surface coating material.
   - Homeless.
   - Workers in hot workplaces, such as kilns in a brickwork factory.
   - Outdoor workers.