ACT Government
Health

ACT Population Health Bulletin

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A message from the ACT Chief Health Officer

This Issue of the Bulletin is a return to the topic of the very first Issue in August 2012, that is, health emergency management.

When people think about health emergencies, the tendency is to think about first responders to, for example, a car accident or someone who collapses in the street with a heart attack. Another example is the work doctors and nurses do in an emergency department in a hospital.

For the purposes of this Issue, health emergency management includes the concepts of an "all hazards approach". This approach encompasses the capability to prepare and plan for, rapidly and effectively respond to and recover from health emergencies, particularly those whose scale, timing, or unpredictability threatens to overwhelm routine service provision.

Population Health, led by the Chief Health Officer (CHO), has a key role in health emergency management, as do equivalent organisations in health departments in every Australian jurisdiction. There is almost always a human health aspect to emergency situations, so even if ACT Health is not leading, there is a role in support of other agencies.

The CHO has statutory powers designed to rapidly remove public health hazards and these are outlined in this Issue. Beyond the legal powers, the Health Emergency Management Unit at the Health Protection Service provides a standing capacity to respond to emergencies as well as to plan and deliver training, plan and conduct exercises and to perform a coordinating function for the wider health sector in the ACT.

A message from the ACT Chief Health Officer (Continued)

In this Issue, health emergencies have been widely interpreted, with examples of how rapid responses to public health hazards can be required to ensure safe drinking water, safe food, safe air quality and safe medicines and medical devices amongst other potential hazards. The recent arrival of international flights into the Canberra Airport has introduced the scope for exotic disease and potential disease vectors such as mosquitos to arrive directly into the ACT, which in turn has required planning to prevent such events and for the appropriate response if required.

The dramatic epidemic thunderstorm asthma (ETSA) event which occurred in Melbourne in 2016 has highlighted the importance of awareness raising and response plans in Canberra during our own pollen season. Particulate air pollution from bushfires, hazard reduction burns and domestic fires is associated with illness and increased mortality and can require specific health messages. Extreme heat events are predicted to increase in the ACT as the climate changes and adaptation measures, including emergency preparedness, messaging and response plans are therefore becoming more important.

Thanks to the guest editor (David Reid) and all the authors for their thoughtful articles. I hope you enjoy the wide scope of articles presented here.

Dr Paul Kelly

ACT Chief Health Officer

August 2018

Australia's first pill testing trial

The ACT Government provided a supportive policy environment to enable a trial of a pill testing service at the Canberra Groovin' the Moo festival on 29 April 2018.

The pill testing trial was conducted by a non-government consortium known as STA-Safe and it was well attended. Approximately 130 patrons used the service, it identified at least two very harmful substances and enabled people who decided to take drugs at the festival to make more informed choices.

The trial was an Australian first and involved a lot of complex work in the lead up to the trial to ensure it was undertaken safely and successfully. As part of this, ACT Health worked with key stakeholders, including on communication and media activities, to enable the trial to proceed.

Pill testing is a harm reduction intervention that includes the chemical analysis of drugs, and the provision of relevant drug information and counselling by qualified personnel. Harm reduction interventions are used by ACT Health to minimise harm to individuals and the wider society from hazardous behaviours or practices that cannot be completely avoided or prevented, such as consumption of illicit drugs.

Meningococcal ACWY vaccine for 15-19 year olds

Following the introduction of meningococcal ACWY immunisation in January this year, uptake figures among year 10 students so far has been very promising, with 79 per cent receiving the vaccine in semester one – equating to 3,958 doses.

The vaccine will be free for 16-19 years old until the end of 2018, with the catch-up program an extension of the free vaccines that were provided to year 10 students at all ACT High Schools earlier in the year.

Young adults between 16-19 years old are being targeted with a catch-up program for the vaccine as they are at increased risk of contracting meningococcal disease.

Students at the Australian National University (ANU) and University of Canberra (UC) had the opportunity to catch up on their free meningococcal ACWY immunisation at vaccine clinics held at university O-Weeks. Vaccination is also being provided to year 11 and 12 students in colleges and schools in term 4, 2018.

Meningococcal disease is a rare but serious bacterial infection. In Australia, the main strains of bacteria that cause meningococcal disease are B, C, W and Y. Meningococcal causes fever, headache, vomiting, stiff neck or sore muscles and is sometimes followed by a red or purple rash. The disease can progress very quickly and can lead to death or permanent disability. From more information visit http://www.health.act.gov.au/our-services/immunisation/adolescents

Image: Meningococcal ACWY catch up program. ACT Health

It's Your Move Healthier Food and Drink Product Design Competition

Multi-award winning program, It's Your Move hosted a Shark Tank-style event on 14 May 2018, where students battled each other to showcase their innovative ideas for Prototypes for new, tastier and healthier food and drink options for local sports canteens.

Following an intense round of pitching ideas to a panel of judges, a team of students from the University of Canberra's (UC) design school and culinary students from the Canberra Institute of Technology (CIT) won the competition,.

The Hummus team created Uncle Chuck's Hot Pocket that met the brief, which was all about creating a food or drink product that is eye-catching, tastes great, is healthy and is a viable and popular option for sports canteens in ACT.

More information about It's Your Move is available on the ACT Health website - http://www.health.act.gov.au/healthy-living/healthy-children-and-young-people/its-your-move

Image: Uncle Chuck's Hot Pocket. ACT Health

RESOURCES

ACT Emergency Services Agency - http://esa.act.gov.au/

ACT Legislation Register - https://www.legislation.act.gov.au/

Air Quality - http://health.act.gov.au/public-information/public-health/act-air-quality-monitoring

Australian Bureau of Meteorology - http://www.bom.gov.au/

Australian Bureau of Statistics - http://abs.gov.au/

Australian Medical Assistance Teams (AUSMAT) - *https://www.national-traumacentre.nt.gov.au/what-we-do/disaster-management/ausmat.*

Biosecurity Act 2015 - *https://www.legislation.gov.au/Details/C2017C00303*

Communicable disease control - http://health.act.gov.au/public-information/public-health/communicable-diseases

Fire safety - http://esa.act.gov.au/actfr/

Food safety - http://health.act.gov.au/public-information/businesses/food-safety-regulation

Healthy Canberra: ACT Chief Health Officer's Report - http://health.act.gov.au/datapublications/reports/chief-health-officers-report

Immunisation - *http://www.health.act.gov.au/our-services/immunisation/adolescents*

It's Your Move - *http://www.health.act.gov.au/healthy-living/healthy-children-and-young-people/its-your-move*

Major Incident Medical Managament and Support (MIMMS) training - hpsops@act.gov.au

Pollen season - http://www.health.act.gov.au/datapublications/fact-sheets/emergencies-and-extreme-weather#Asthma

State Emergency Services - http://esa.act.gov.au/actses/

Summer safety - http://www.health.act.gov.au/healthy-living/summer-safety

TGA recall alerts - https://www.tga.gov.au/recalls

ACRONYMS

AAQ – Ambient Air Quality

ACTAS – ACT Ambulance Service

ACTGAL – ACT Government Analytical Laboratory

ACTRFS – ACT Rural Fire Service

AIIMS – Australasian Interagency Incident Management System

AQI – Air Quality Index

ART – Acute Response Team

AUSMAT - Australian Medical Assistance Team

BOM – Bureau of Meteorology

CHO – Chief Health Officer

CDC – Communicable Disease Control

COPD – Chronic obstructive pulmonary disease

CSO – Customer Service Officer

DAWR – Department of Agriculture and Water Resources

ECC – Emergency Coordination Centre

EH – Environmental Health

EHO – Environmental Health Officer

EPA – Environment Protection Authority

EPSDD – Environment, Planning and Sustainable Development

ESA – Emergency Services Agency

EH – Environmental Health

ETSA – Epidemic Thunderstorm Asthma

HBCOs – Human Biosecurity Control Orders

HBOs – Human Biosecurity Officers

HC – Health Controller

HECC – Health Emergency Control Centre

HEMSC – Health Emergency Management Sub-Committee

HEMU – Health Emergency Management Unit

HEOC – Hospital Emergency Operations Centre

HEOP – Hospital Emergency Operations Plan

HEP – Health Emergency Plan

HPS – Health Protection Service

IGEM – Inspector-General for Emergency Management (Victoria)

LHDs – Listed Human Diseases

NCCTRC - National Critical Care and Trauma Response Centre

NEPM – National Environment Protection Measure

PAHs – Polycyclic Aromatic Hydrocarbons

PCBs – Polychlorinated Biphenyls

PH – Public Health

PHD – Population Health Division

PHEP – Public Health Emergency Plan

PICC – Public Information Coordination Centre

PM – Particulate Matter

SARS – Severe Acute Respiratory Syndrome

SEMPG – Security and Emergency Management Policy Group

SEMSOG – Security and Emergency Management Senior Officials Group

TCH – the Canberra Hospital

TIC – Traveller with Illness Checklist

WHO – World Health Organisation

ACT Government Emergency Management Arrangements

Chris Kelly, Health Emergency Management Unit, Population Health

The ACT Government has broad whole-of-government emergency management arrangements. In the event of a significant emergency affecting the ACT, a number of ACT Government directorates, agencies, and stakeholders will respond to protect the ACT community. The purpose of this article is to summarise the broader ACT Government emergency management arrangements, and how ACT Health fits into these arrangements.

The ACT in Context

The ACT has a number of unique features as a jurisdiction, which impact upon emergency responses.[1] The ACT:

- Has a population of approximately 412,000[2];
- Is surrounded by nature reserves and national parks (71 percent of the ACT's total area);
- Combines the functions of a state government and local council, and is the 'Seat of Government' in Australia;
- Is the location of key industry, including government, embassies, consulates, education (universities), Commonwealth Defence, building industry, cultural and heritage sectors; and
- Acts as a regional hub for south-east NSW for many essential services

What is an emergency?

An emergency is defined as, "an actual or imminent event that requires a significant and coordinated response".[1] Examples of such events include fire, flood, storm, animal disease, or a shortage of electricity, gas, fuel or water. From a health perspective, other examples include a pandemic, mass casualty event, or an extreme heat event.

What are the ACT Government's Emergency Management Arrangements?

The ACT Government has well-practised emergency management arrangements that are informed by the *Emergencies Act 2004* (the Act) and the ACT Emergency Plan (2014). The Act establishes strategic and whole of government arrangements for emergency management in the ACT. The ACT Emergency Plan describes the responsibilities, authorities and the mechanisms to prevent, or if they occur, manage emergencies and their consequences within the ACT in accordance with the Act.

Image: Emergency Services Agency. ACT Government

The ACT Emergency Services Agency (ESA) is the ACT Government organisation charged with providing emergency management services to the Canberra community. ACT Government agencies respond to a wide range of incidents and emergencies on a daily basis. The majority of these responses involve only one agency. Large scale, long duration and complex emergencies, however, require a coordinated multi-agency response.

ACT Government Emergency Management Arrangements (cont)

How does the ACT Government ensure effective emergency management?

There are several key principles that guide emergency management in the ACT. These principles are beneficial in providing a framework in which to anticipate and respond to disasters.[1] These principles include:

- All Hazards Approach – Arrangements for managing the large range of possible effects of risks and emergencies (e.g. same response arrangements for a storm or an extreme heat event);
- All Agencies Approach – Arrangements for dealing with emergencies involve an effective and active partnership between responding agencies (e.g. Establishment of an ACT Emergency Coordination Centre);
- Comprehensive Approach – A continuum of risk management through four types of activities (prevent, prepare, respond & recover) that contribute to the reduction or elimination of hazards;
- Prevention – implementation of measures designed to avoid (or reduce) the consequences of emergencies on the community;
- Preparedness – preparation and planning arrangements for agencies to mobilise their management structures and resources to support an emergency;
- Response – the actual response by an agency/agencies to an emergency in order to minimise or mitigate impacts upon life, property, and/or the environment; and
- Recovery – process of returning an affected community to its proper level of functioning after an emergency.[1]

The ACT Government uses the Australasian Inter-service Incident Management System (AIIMS) methodology that provides a framework for all incident types, from first response to demobilisation. The key principles of AIIMS are:

- Management by objectives – All incident personnel work towards one common set of objectives;
- Functional management – AIIMS uses core functions during an emergency response, including Operations, Logistics, Planning, Public Information, Intelligence, Investigation, and Finance;
- Span of control – The number of groups or individuals that can be successfully supervised by one person (up to seven subordinates);
- Flexibility – The emergency response can be adapted to different types of emergencies, based on the nature of the hazard, the scale of the emergency, the number of agencies involved; and
- Unity of command – There is only one Incident Controller for any incident, who controls the emergency response. Also, each individual involved in the emergency response should report to only one supervisor.

Key ACT Government Functions during an Emergency

When an emergency occurs, the ACT Government will respond with the appropriate level of activation determined by the scale of the emergency and the functions that may need to be undertaken as a consequence of the emergency. Key functions / centres during a significant emergency include:

- Incident Controller – The Incident Controller is the individual responsible for the management of all incident operations. The most suitable person is selected from the lead response agency (e.g. ACT Fire and Rescue are the lead agency during an urban fire). In

ACT Government Emergency Management Arrangements (cont)

the event that ACT Health is the lead agency, the title of Health Controller will be used.

- Health Emergency Control Centre - the HECC controls the ACT health sector during an emergency. This may occur when ACT Health is the lead response agency during a health emergency, or in support of the lead response agency during other types of emergencies.

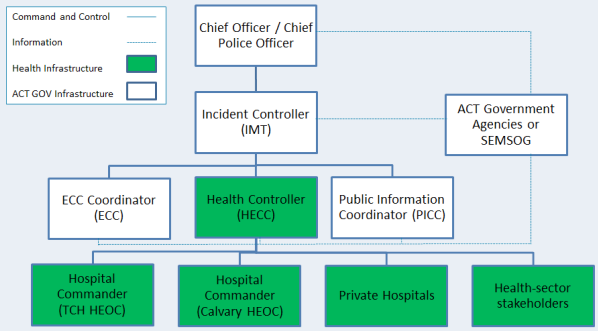

Figure 1: Key ACT Government functions during an emergency ACT Health

- ACT Emergency Coordination Centre (ECC) – The ECC coordinates the resources required to support the operations of the Lead Response Agency Controller or Emergency Controller (if appointed). Liaison Officers attend from each Directorate and relevant agency, including ACT Health.

- ACT Public Information Coordination Centre (PICC) – During an emergency, all public information from the ACT Government will be managed through the PICC. ACT Health Government and Communications staff may be requested to attend the PICC if activated.

- Security and Emergency Management Senior Officials Group (SEMSOG) – SEMSOG is established under the *Emergencies Act 2004* with membership from executives across the ACT Government, including Directors-General, the ACT Emergency Services Commissioner, the Chief Health Officer, the Chief Police Officer and others. SEMSOG provides a strategic role during an emergency in providing support, advice, and resources to the lead response agency.

- Emergency Controller – The Emergency Controller is the person appointed by the Chief Minister under section 159 of the *Emergencies Act 2004* to lead a significant emergency. The appointment may occur during a State of Emergency when the Chief Minister is satisfied that an emergency requires a significant and coordinated response. The Emergency Controller receives extraordinary powers to lead the emergency.

- Cabinet – The Cabinet provides strategic leadership to the ACT Government's response to a major emergency. The Cabinet will be supported by advice from SEMSOG and the Emergency Controller (if appointed).[1]

References

1. *ACT Emergency Services Agency. ACT Emergency Plan. Canberra, 2014*
2. *Australian Bureau of Statistics, Australian Demographic Statistics, Dec 2017. http://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3101.0Main%20Features1Dec%202017?opendocument&tabname=Summary&prodno=3101.0&issue=Dec%202017&num=&view=*

Emergencies in health

David Reid, Health Emergency Management Unit, Population Health

ACT Health has mature and well-practiced emergency management plans and arrangements to ensure that the Directorate is able to respond effectively to health incidents, events and emergencies at the Directorate, Territory and National levels. This article will provide a description of emergencies, key roles during an emergency, and current planning and response arrangements.

What is an emergency?

An emergency is defined as, "an actual or imminent event that requires a significant and coordinated response"[1]

From a health perspective, an emergency may include, but not be limited to:

- Accidental or deliberate release of biological, chemical and radiation hazards;
- Significant disruption to health service delivery;
- Health facility medical evacuation;
- Exposure to contaminated drinking or recreational water;
- Food supply contamination or food borne illness outbreak;
- Pharmaceutical contamination, adverse events or recalls;
- Loss or damage to sanitation critical infrastructure;
- Introduced epidemic infectious disease; and
- The public health consequences of natural or technological disasters.

What is ACT Health's role during an Emergency?

ACT Health has responsibilities detailed in the ACT Emergency Plan as a lead agency for several emergencies, and as a designated support agency for a large number of identified hazards.[1] ACT Health is the lead agency for:

- Communicable human disease outbreaks, including pandemics;
- Food contamination; and
- Water supply contamination.

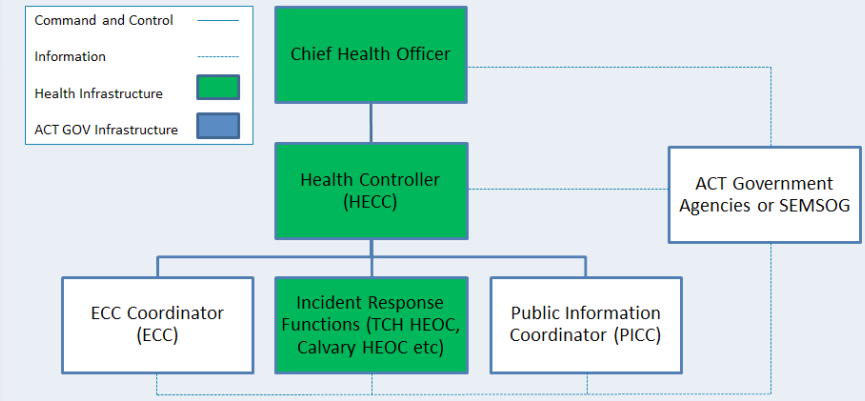

Figure 1: ACT Health emergency management arrangements. ACT Health

The Chief Health Officer (CHO) is a statutory position created under the *Public Health Act 1997*. The CHO has a number of responsibilities related to an emergency response in the ACT. Further information about the CHO's powers under legislation is available on page 9.

The CHO is also one of a number of ACT officials who have responsibilities under the ACT Emergency Plan which is required by the *Emergencies ACT 2004*.

Emergencies in health (cont)

The CHO's key functions during an emergency to lead the ACT health sector response include:

- Support Cabinet with advice in response to a major incident;
- Recommend the appointment of, or be appointed as, an Emergency Controller to manage the response to and the recovery from an emergency;

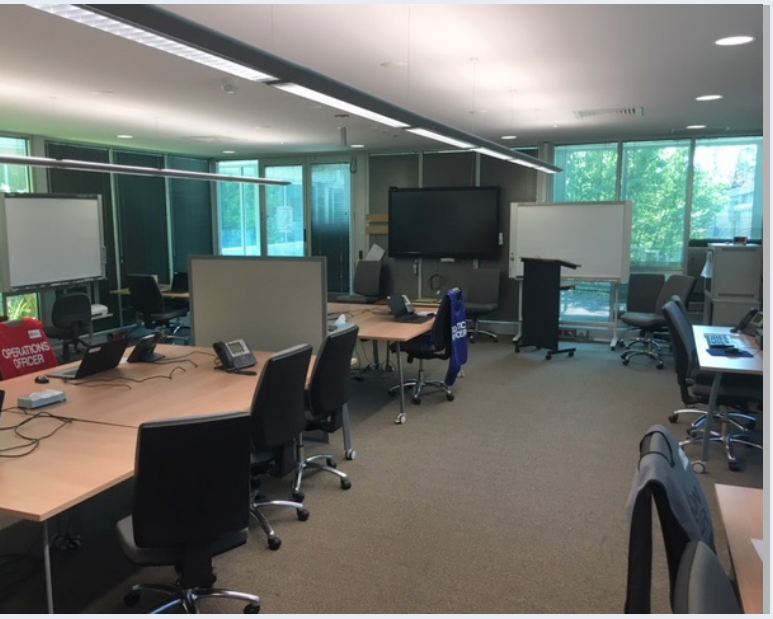

Image Health Emergency Control Centre. ACT Health

- Perform the role of Incident Controller (specific title Health Controller) when ACT Health is the lead agency;
- Perform the role of the Health Controller, when ACT Health is a support agency; and
- Direct the use of ACT Health resources or personnel to respond to or assist with the response to identified hazards.

The Health Emergency Management Unit (HEMU) supports the CHO's identified functions. The HEMU's roles are to provide strategic emergency management coordination to the ACT health sector and provide policy and operational support to the CHO's emergency roles and functions.

What Emergency Plans does ACT Health have in place?

The Health Emergency Plan (HEP) provides the framework for a coordinated whole of health sector approach to emergencies. The HEP supports the broader ACT Emergency Plan, which governs all types of emergencies in the ACT. Under the HEP, the CHO may appoint a Health Controller to coordinate or control the emergency response activities of the ACT health sector.

The HEP has a number of supporting annexes for specific health-sector emergencies. These supporting annexes include:

- Healthcare Facility Medivac Plan - Evacuation of a healthcare facility;
- Mass Casualties Incident (MCI) Plan - Health-sector guidance on MCI, including severe burns, and chemical, biological, radiological, and nuclear (CBRN) incidents;
- Epidemic Infectious Diseases Plan - Health-sector guidance on a broad range of EID; and
- Public Health Emergency Plan - Planning and response arrangements for an emergency with public health consequences.

Level 1

A Level 1 incident is described as a low / medium level impact on business operations or public health. In public health, this may include a gastroenteritis outbreak, pharmaceutical recall, or measles outbreak.

The Health Protection Service can establish Acute Response Teams (ARTs) to rapidly assess, coordinate and respond to a Level 1 incident. This can include one of the following scenarios:

- An incident cannot be effectively investigated and / or managed by one business unit;

Emergencies in health (cont)

- An incident potentially presents an ongoing risk to the health and / or safety of the ACT community; and / or
- An incident has the potential to generate significant public and / or media interest.

An ART comprises two or more business units working together to manage the emergency response. The ART Chair (incident controller) will be appointed by the ED HPS, Public Health Physician, CHO, or the on-call CHO. In most cases, the Public Health Physician will be appointed as the ART Chair.

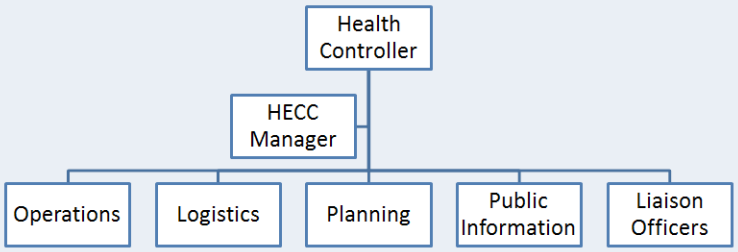

Figure 2: AIIMS Methodology during health emergency. ACT Health

If the incident exceeds the response capabilities of the ART, the ART Chair may advise the CHO (or on-call CHO) to escalate to a Level 2 response under the Public Health Emergency Plan (PHEP).

Level 2

A Level 2 incident is characterised by the deployment of resources beyond the initial response, establishment of incident control, and increased levels of incident complexity. Examples of a Level 2 incident may include a Healthcare Facility Medical Evacuation or the activation of multiple hospital emergency operation centres.

At this level, the CHO will appoint a Health Controller (HC) who will manage the incident. The HC will activate the Health Emergency Control Centre (HECC) to support the strategic emergency response activities of the health sector. The HECC may also:

- Control ACT health sector input into ACT Government emergency arrangements;
- Coordinate with other health authorities and the Commonwealth Department of Health;
- Conduct strategic planning for longer term and concurrent activities; and
- Develop and maintain an overall health-specific record of the emergency.

The HECC has previously been activated to respond to health emergencies including drug recalls, disease outbreaks, and internal disasters (Code Yellow) at hospitals.

Level 3

A Level 3 response is characterised by the need for whole-of-government coordination to respond to the incident. The HECC will be activated, along with other Territory level arrangements, as per Figure 1 on page 8.

References

1. *ACT Emergency Services Agency. ACT Emergency Plan. Canberra, 2014*

Powers of the Chief Health Officer under legislation

Geoff Purser, Legal Policy Office, Population Health

The Chief Health Officer (CHO) undertakes a variety of statutory functions, exercises powers under health and food-related legislation, and is responsible for:

- Developing and implementing strategies to promote and protect public health;
- Providing advice to the Minister and the Director-General on matters relating to public health and wellbeing;
- Publishing a comprehensive report on public health and wellbeing in the ACT on a biennial basis; and
- Performing the functions or powers specified in the *Public Health Act 1997* or any regulations made under that Act or any other Act.

ACT residents are regularly informed about health issues that have the potential to affect their health and safety by the CHO. Information is provided via public health alerts[1] and health advice for the ACT, and a range of other documents accessible on the ACT Health web site.

This article will focus on the CHO powers under Part 6A and 7 of the *Public Health Act 1997* and the *Emergencies Act 2004* (ACT). The CHO also has powers under the *Biosecurity Act 2015 (Cth),* which will be covered in more detail on page 12 on the biosecurity arrangements at the Canberra Airport.

Public Health Act 1997

The purpose of the *Public Health Act 1997* (the PH Act) is to set in law the standards, rules and powers used to preserve, protect and promote the public's health. The PH Act enables the ACT to prepare and respond to public health risks by:

- Allowing public health officials to take immediate action on a health hazard that presents a serious and immediate threat to public health;
- Providing stronger powers to health professionals, so they can take action to minimise the risk of communicable diseases;

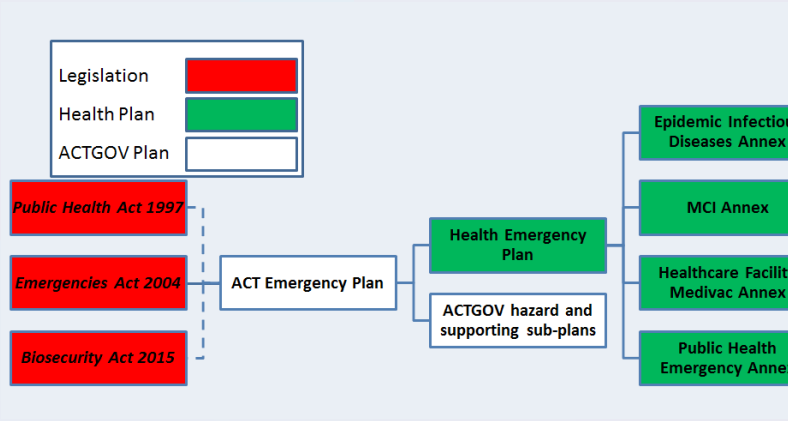

Image: CHO Roles under Legislation and Plans. ACT Government

- Creating a defined position in the CHO who can use special powers to respond to significant public health emergencies;
- Improving coordination between health officials to plan for and deal with public health issues;
- Defining the roles and powers of public health officials; and
- Providing guidance and codes of practice to help tackle the growing incidence of chronic non-communicable conditions in our community.

Powers of the Chief Health Officer under legislation (cont)

Functions of the Chief Health Officer

Section 9 of the PH Act outlines the following functions of the CHO:

(a) Develop and implement strategies to promote and protect public health;

(b) Ensure that the following Acts are complied with: the PH Act, the *Food Act 2001*, and the *Medicines, Poisons and Therapeutic Goods Act 2008*;

(c) Advise the Minister about proposed legislative or administrative changes related to public health and the safety and suitability of food for human consumption; and

(d) Carry out any other functions decided, in writing, by the Minister for an Act mentioned in paragraph (b).

One of the core functions of the CHO is to prepare a written report every two years about public health indicators in the Territory (Section 10). This may include trends and indicators in health status, potential public health risks, morbidity and mortality and other subjects. Copies of the CHO's report are available online at: http://www.health.act.gov.au/datapublications/reports/chief-health-officers-report

Delegation of the Chief Health Officer's Powers

The CHO is able to delegate their powers under the above acts (section 11). Public health officers occupy specified positions created and maintained by the Director-General. They are given specified powers under the PH Act to assist in its implementation, including the power to inspect premises and issue notices requiring certain specified actions to be undertaken.

Under the PH Act, sections 13 and 14 allow for the appointment of authorised medical officers to occupy specified positions created and maintained by the Director-General. An authorised medical officer may or may not be a public servant but must be a medical practitioner and often may have desired specialised skills or knowledge. They would be given specifically delegated powers by the CHO to assist in the implementation of particular aspects of the PH Act.

The CHO may, in writing, authorise a public health officer or an authorised medical officer to undertake certain specified duties as determined by the CHO.

Emergency Powers

The PH Act provides under Part 7 for the CHO, during a public health emergency, to have certain powers to avert an actual or imminent public health hazard.

The CHO can issue an order to take such action as he/she thinks necessary to prevent a threat that has a serious or imminent risk to life, personal safety or health. The Minister is advised by the CHO of any order issued.

Both individuals and public authorities are bound to comply or suffer a penalty.

Notifiable Diseases Powers

The CHO or their delegate can give directions to a person diagnosed with a controlled notifiable disease. These directions would require the person to take or refrain from certain actions to prevent the risk of spreading infection to others.

These directions/actions may include:

- Isolation at a specified place;
- Supervision by an authorised person from ACT Health;
- Submission to examination at required intervals;
- Refraining from specified work, or any work other than specified work; and

Powers of the Chief Health Officer under legislation (cont)

- Other directions that the CHO considers should apply to prevent the spread of infection.

If the person infected with a controlled notifiable disease fails, in the absence of a reasonable excuse, to comply with the directions, the CHO or his/her delegate may take the following actions.

Detention Powers

As a last resort, the PH Act provides the power for the CHO, or his/her delegate, to order the detention of a person for forty eight hours where special directions have not been complied with. This would be in a facility appropriate to their health needs and the criteria, for a person's detention, would include:

- Certification by a medical practitioner that he/she is suffering from a controlled notifiable disease;
- The continuation of behaviour, after further counselling, that places the public's health at risk; and
- An inability to adequately provide for the person's care or the public's safety in a less restrictive environment.

Further information on detention powers can be found within the PH Act. The CHO can also use the following powers, including:

- A direction to clean or disinfect any premises or article;
- The destruction of any article, substance or food;
- The minimisation of the risks of infection;
- The seizure of any vehicle, article, substance or food;
- The imposition of quarantine or closure of premises; and
- The taking of other such action as may be necessary.
- There is a penalty for failure to comply without reasonable excuse.

Powers to prevent spread of infectious diseases

Upon the CHO becoming aware of a case of a notifiable disease (as prescribed by the National Health and Medical Research Council), he/she may take steps to locate the source. These steps may include interviewing patients and contacts. The CHO has the power to demand information relevant to the tracing of contacts and the sources of disease. It is an offence to give false or misleading information.

The PH Act protects professional care-givers from personal liability in such circumstances provided that these duties have been discharged in good faith.

Collection of data powers

The CHO has the power to collect and report perinatal statistics and notifiable diseases in the ACT. The collection of such data helps to address the issue of improving the capacity of public health authorities to monitor and analyse patterns of disease.

Whenever information is being collected from individuals they are made aware of the:

- Reason for its collection;
- Lawful authority, if any, for doing so; and
- To whom such information may be disclosed.

Inspection of records

The CHO can inspect records maintained by a public or semi-public authority (e.g. Evo Energy) when this infor-

Powers of the Chief Health Officer under legislation (cont)

mation relates to public health.

Emergencies Act 2004

The CHO is a member of the Security and Emergency

Image: Health Emergency Control Centre. Source: ACT Health

Management Senior Officials Group (SEMSOG).[6] The main function of the SEMSOG is to provide for liaison between entities in relation to emergency management.[7] In exercising this function, the SEMSOG must seek to:

- Enhance emergency management capabilities;
- Reduce community vulnerability to the effects of emergencies; and
- Improve emergency management awareness and training.[8]

SEMSOG also has the following additional functions:

- To advise the Minister and the Chief Minister about emergency management; and
- To support the ESA Commissioner in emergency management, including the preparation of the emergency plan or any part of the plan.[9]

While the CHO does not have stated roles under the *Emergencies Act 2004*, the CHO may be appointed as the Emergency Controller during a significant emergency.

The Emergency Controller is the person appointed by the Chief Minister under section 159 of the *Emergencies Act 2004* to lead a significant emergency. The appointment may occur during a State of Emergency when the Chief Minister is satisfied that an emergency requires a significant and coordinated response. The Emergency Controller receives extraordinary powers to lead the emergency. If the CHO is appointed as the Emergency Controller, they could use the powers under the PH Act and *Emergencies Act 2004* in concert with each other.

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Exercise Agua Sucia - Desktop exercise

Paul Cortese, Health Emergency Management Unit, Population Health

ACT Health undertakes regular emergency management exercises, both theoretical and practical, to develop and maintain skills for actual emergencies. When these exercises are undertaken, they are facilitated by HEMU. In previous years, HEMU have run mock exercises for food contamination, business continuity, pandemics and other hazards.

On 18 May 2017, HEMU and ICON Water conducted Exercise Agua Sucia. The purpose of this theoretical exercise was to test and validate high level coordination of ACT Health and ICON Water in response to a mock water supply network contamination and the subsequent response. The exercise explored the process for declaring the water supply safe, including the messaging and the mechanics of flushing the network and internal water reticulation systems.

The exercise scenario was the contamination of the Macarthur reservoir, which services a number of suburbs (notionally Macarthur, Fadden, and Gowrie) in Canberra. In the scenario, animal carcass in the reservoir, led to the introduction of a reportable strain of *Escherichia. coli (E.coli)* to the water supply and causing health complications in the community. The contamination affected schools, food businesses, and approximately 15,000 residential households.

The type of *E. coli* used for the exercise was O157:H7 serotype. This particular serotype is often the cause of Shiga toxin-producing *E. coli* (STEC), which is a notifiable condition in humans in the ACT. Transmission occurs through the faecal contamination of water and other foods, cross-contamination during food preparation, and consumption of contaminated foods. The incubation period varies between three to eight days. Most patients recover within ten days, although young children and the elderly may result in life threatening disease. The symptoms of STEC include abdominal cramps and diarrhoea that may progress to bloody diarrhoea. Fever and vomiting may also occur.

The desktop exercise was attended by representatives from the Population Health Division (Deputy Chief Health Officer, Communicable Disease Control, and Environmental Health), ACT Health Communications, Icon Water and key stakeholders from across ACT Government.

Image: Cotter Dam Resevoir Canberra. Source: WikiCommons

ACT Health participants explored possible response arrangements to the exercise scenario, including:

- Activate an Acute Response Team (ART);
- Activate the Health Emergency Control Centre (HECC), including with a representative from ICON Water;
- Develop pro-active public messaging;
- Work with ICON Water on sourcing an alternative water supply over a number of days (for example, use of bulk tankers, supply points, sample testing);
- Work with ICON Water to clean the water network and return the service to normal; and
- Coordinate ACT Government resources (for example, the Community Services Directorate will establish evacuation centres if households have to be evacuated).

Communications was a significant point of discussion during the exercise. The exercise participants developed alternative communication methods with the public during a prolonged emergency, including both affected and unaffected residents. This included the use of social media, scripts at Access Canberra call centres, and other channels. Exercise participants also explored possible public health messaging from the Chief Health Officer including:

- Issue a notice to 'boil water before drinking or cooking';
- Issue a notice to 'do not drink the water';
- Issue a notice to 'do not use the water at all'; and
- Request ICON Water to 'cease the supply of water'.

The exercise was successful and achieved the established objectives. A number of recommendations were prepared for ACT Health and ICON Water, including to strengthen future responses, continuing information sharing between agencies, and reviewing processes for declaring water to be safe.

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Health controller course

Rhian Blackwell, Health Emergency Management Unit, Population Health

The Health Emergency Management Unit (HEMU) provides training to ACT Health staff and health sector stakeholders. This ensures that ACT Health is prepared for major incidents and emergencies. The HEMU does this by maintaining the Health Emergency Control Centre capability, conducting regular exercises, and maintaining a pool of over 200 Australasian Inter-service Incident Management System (AIIMS) trained staff.

The HEMU runs an annual 'Health Controller Course' that is suitable for staff who may hold a senior role in an emergency management structure, such as an Acute Response Team, Health Emergency Control Centre, or Hospital Emergency Operations Centre. The course matches two national competencies.

Image: Emergency Exercise. Source: ACT Health

The Health Controller is appointed by the Chief Health Officer to manage a significant health-sector emergency response. This individual is responsible for the command and control (the overall direction of the emergency response), and coordination of an emergency response (bringing together agencies and individuals to support the emergency response). This position will be used in all incident types, from first response to demobilisation.

ACT Health ran a Health Controller Course between 12-14 June 2018 and a final assessment on 1 August 2018. There were twelve attendees from ACT Ambulance Service, ACT Health, Calvary Hospital, and NSW Health. The course includes coursework, an interactive full day exercise, and a final exercise two months after the course to complete the mandatory requirements. The course was well received and the HEMU will plan for another course in the first half of 2019.

If your position requires you to be involved in an emergency management role, and you are interested in further training, you may contact the HEMU via hpsops@act.gov.au.

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ACT Australian Medical Assistance Teams (AUSMAT) Program

Chris Kelly, Health Emergency Management Unit, Population Health

An AUSMAT is a state or territory based medical assistance team, with self-sustaining field deployment capability, for deployment to domestic or international responses.

The Department of Health and the National Critical Care and Trauma Response Centre (NCCTRC) jointly manage the national AUSMAT capability with participation of all states and territories.

The ACT has participated in the national AUSMAT program since its inception in 2006. The Health Emergency Management Unit (HEMU) has maintained the ACT AUSMAT program since 2010 as part of the unit's core business over this time.

Image: ACT AUSMAT Team Member Training Course 2013. ACT Health

Background

An Australian Medical Assistance Team (AUSMAT) is a state or territory based medical assistance team with self-sustaining field deployment capability for deployment to domestic or international responses. AUSMATs have been deployed overseas disasters in 2007, 2010, 2013, 2015 and 2018.

Governance

The Commonwealth Department of Health and the National Critical Care and Trauma Response Centre (NCCTRC) based in Darwin, jointly manage the national AUSMAT capability with participation of all states and territories. Governance of the national capability is via the Australian Health Protection Principle Committee (AHPPC). AUSMATs are one of twelve enablers detailed under the *National Health Emergency Response Arrangements* (the NatHealth Arrangements).

A national AUSMAT rostering system is used to provide guidance for sourcing an AUSMAT when required. The annual roster provides guidance to states and territories to assist in managing deployment expectations and the AHPPC, as to which state or territory is available to respond to a request for an AUSMAT at a particular time.

ACT Australian Medical Assistance Teams (AUSMAT) Program (cont)

ACT AUSMAT Program

The ACT has participated in the AUSMAT program since its inception in 2006. The Health Emergency Management Unit (HEMU) has maintained the ACT AUSMAT program since 2010 as part of the unit's core business. The HEMU has a developed ACT AUSMAT Action Plan for 2018-21. The objectives of the action plan are to::

- Increase and enhance current ACT AUSMAT volunteer capacity and capability;
- Increase and enhance ACT Health participation in and influence on national policy development for the AUSMAT program;
- Increase the number of ACT AUSMAT volunteers deployed overseas; and
- Maximise utility of AUMSAT volunteer skills for the benefit of the ACT health sector.

As of 20 April 2018 the ACT has 22 AUSMAT volunteers on the AUSMAT Database. AUSMAT volunteers need to meet and maintain deployment ready standards to be considered for deployment. Health Professionals interested in the AUSMAT program can contact the HEMU via hpsops@act.gov.au or obtain more information via the NCCTRC AUSMAT volunteer portal at https://www.nationaltraumacentre.nt.gov.au/what-we-do/disaster-management/ausmat.

Image: ACT Health staff at AUSMAT training, May 2018. ACT Health

ACT Health AUSMAT Training

Three ACT Health staff attended the Australian Medical Assistance Team (AUSMAT) Team Member course held in Darwin on the 21-25 May. "Australian Medical Assistance Teams (AUSMAT) are multi-disciplinary health teams incorporating doctors, nurses, paramedics, fire-fighters (logisticians) and allied health staff such as environmental health staff, radiographers and pharmacists. They are designed to be self-sufficient, experienced teams that can rapidly respond to a disaster zone to provide life saving treatment to casualties, in support of the local health response. The AUSMAT Course is administered by the National Critical Care and Trauma Response Centre (NCCTRC) based in Darwin which provide a large range of training options in line with disaster response capacity and capability. The training involves preparing potential AUSMAT members for operating in the heat and conditions that are outside the norm of their day to day work areas. The ACT will be again represented at the June and September courses with Medical staff, Allied Health and Paramedics attending.

Major Incident Medical Management and Support (MIMMS) training

Craig Cannon, Health Emergency Management Unit, Population Health

The Health Emergency Management Unit (HEMU) co-ordinated and hosted one-day 'MIMMS Team Provider' courses over two consecutive days on 14 and 15 August 2018. The training course was run in conjunction with NSW Health.

MIMMS provides a structured "all-hazards" approach to the major incident scene (major incident medical management) and to dealing with multiple casualties (major incident medical support), irrespective of the nature of the incident.

The course is an internationally recognised disaster management response system that is developed and licenced with the Advanced Life Support Group in the UK, and managed in Australia by the National Critical Care and Trauma Response Centre (NCCTRC).

There were approximately twenty participants per day from across the health and emergency services sectors, including ACT Health (Canberra Hospital and Health Services, and Health Policy and Strategy Divisions), Calvary Public Hospital, ACT State Emergency Service, ACT Ambulance Service, and NSW Health.

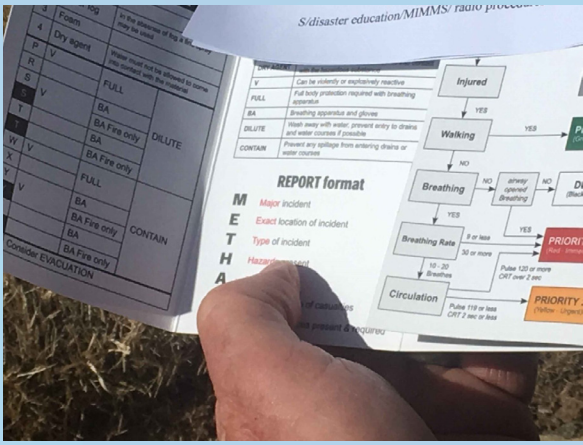

Image: MIMMS Training Course. ACT Health

During the one day course, participants learn and experience response specific skills inclusive of:

- Incidents in context;
- Communications;
- Command and control;
- Treatment and transport;
- Personal and medical equipment;
- Radio procedures;
- Medical support; and
- Triage.

Major Incident Medical Management and Support (MIMMS) training (cont)

The course was supported with qualified MIMMS instructors from NSW Health and St John Ambulance. NSW Health are an accredited trainer for the MIMMS course. The training course is aligned to a national competency, and as part of the course, a nationally recognised qualification is awarded to participants.

The MIMMS Team Provider course is suitable for registered medical practitioners, registered nurses, paramedics and ambulance officers. Those who work in the fields of emergency or disaster medicine/nursing, and pre-hospital care will find the course especially useful. If you are interested in future MIMMS Training courses you can contact the HEMU via hpsops@act.gov.au.

Image: MIMMS Training Course. ACT Health

Public health and biosecurity arrangements for international services at the Canberra Airport

Dr Miranda Harris, Communicable Disease Control, Population Health

International air travel poses potential public health risks through the importation of communicable diseases. Such diseases could have a significant health impact on the Australian community. The Canberra Airport recently commenced international flights into the Australian Capital Territory (ACT). This article outlines the new arrangements that have been established to protect public health in light of this change and the implementation of new national biosecurity legislation.

International Airline Services in the ACT

International airline services began for the first time at the Canberra Airport in September 2016 with flights between Wellington and Singapore.[1] ACT Health has been working with the Canberra Airport and other key stakeholders to minimise the risk of human infectious diseases entering the ACT via an international flight through the implementation of biosecurity measures under the new *Biosecurity Act 2015*.

Biosecurity Act 2015

On 16 June 2016, the *Biosecurity Act 2015* came into force, replacing the *Quarantine Act 1908*.[2] The human health aspects of the *Biosecurity Act 2015* (the Act) are aimed at preventing the entry, emergence and spread of certain communicable diseases.[2] It is jointly administered by the Departments of Health, and Agriculture and Water Resources.[3] In comparison to the Quarantine Act, the Act is a more modern piece of legislation that provides a flexible and adaptive approach to managing the risk of serious communicable diseases.[3] It takes into account the rights of individuals when determining an appropriate intervention and ensures that any limitations placed on an individual are proportionate to the identified risk.[3]

Listed Human Diseases

While there are a number of infectious diseases that would be of concern if they were brought into Australia, a small group of communicable diseases have been classified as being of major concern.[4] These are known as listed human diseases (LHDs) and are set out in the Biosecurity (Listed Human Diseases) Determination 2016 as outlined below:[5]

- Human influenza with pandemic potential;
- Middle East respiratory syndrome;
- Plague;

Image: Singapore Airlines flight arrives in Canberra. Source: ABC News

- Severe acute respiratory syndrome (SARS);
- Smallpox;
- Viral haemorrhagic fevers; and
- Yellow fever

In addition to these diseases, the Director of Human Biosecurity may declare a disease to be a LHD, if they consider the disease may be communicable and cause significant harm to human health.[6] The Director of Human Biosecurity also holds the position of Commonwealth

Public health and biosecurity arrangements for international services at the Canberra Airport (cont)

Chief Medical Officer.[6]

Canberra Airport Preparation

Prior to the commencement of international flights into Canberra, ACT Health initiated and led the multi-agency Public Health and Biosecurity Working Group established to develop processes to ensure that a public health or human biosecurity risk from an international flight would be appropriately managed within the ACT. ACT Health is also an important stakeholder in the Canberra Airport's Emergency Plan should an ill traveller at the Canberra Airport be suspected of having an LHD.

Identification and Management of Suspected LHDs

In order to identify ill travellers, international flights arriving into Australia must air an announcement that directs travellers to notify a crew member if they are feeling unwell, particularly with a fever, chills or sweats.[7] Prior to landing, an operator of an aircraft is required to report to the Department of Agriculture and Water Resources (DAWR), the details of any person on board the aircraft who has, or had, signs or symptoms of a LHD during the flight.[7]

If the DAWR is notified of an ill traveller with a potential LHD, a biosecurity officer may board the aircraft and complete a Traveller with Illness Checklist (TIC) for that individual.[4,8] The TIC is a screening tool that consists of a series of specific questions used to identify the likelihood that an ill traveller has an LHD.[4]

If the TIC indicates that the traveller may have an LHD, the officer will contact a jurisdictional Human Biosecurity Officer (HBO) who will determine an appropriate public health response.[4] Depending on the situation, ACT Health staff may be involved in following up travellers on the same flight (who may have been exposed to the ill traveller) for possible screening or prophylaxis.

HBOs are medically-trained public health officials. In the ACT, the Chief Human Biosecurity Officer is the Chief Health Officer (CHO). Under the Act, HBOs are provided with the legislative power to impose Human Biosecurity Control Orders (HBCOs) that allow for the monitoring, treatment and management of an individual suspected of having an LHD.[6] This may include measures such as vaccination, limiting travel and isolation. HBCOs are only used in extreme circumstances.

Vector Control

Image: Mosquito. Source: Public Health Image Library

Vector control is another biosecurity measure that aims to prevent the transmission of vector borne communicable diseases in the ACT. Vector control is implemented to prevent exotic mosquitoes capable of transmitting diseases such as dengue, chikungunya, yellow fever and zika viruses from establishing breeding populations in the ACT.[9]

Under the Act, an operator of an aircraft must take disinfection measures to control or destroy insect vectors that have the potential to cause a LHD.[6] These insect vectors may exist in the aircraft or located in goods in or on the aircraft.[7]

Public health and biosecurity arrangements for international services at the Canberra Airport (cont)

To supplement the disinfection requirements of international aircraft, vector monitoring for exotic mosquitoes is carried out routinely by the DAWR at the Canberra Airport.[9,10] If a suspected exotic mosquito is identified, confirmatory identification must be obtained from a medical entomologist. If confirmed, ACT Health would subsequently advise the Canberra Airport on the treatment requirements in response to an exotic mosquito detection. Based on a risk assessment, this may include thermal fogging and/or residual surface treatments. A period of enhanced surveillance of exotic mosquitoes at the Canberra Airport precinct would then be implemented by the DAWR. Depending on the circumstances, consideration may be given to extending surveillance beyond the Canberra Airport precinct in liaison with ACT Health.

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Communicable disease outbreaks in the ACT.

Tim Sloan-Gardner, Communicable Disease Control, Population Health

The main purpose of any outbreak investigation is to identify the cause of illness and implement appropriate public health measures to prevent further cases. Outbreak investigations and their findings can also add to the scientific knowledge on the epidemiology of communicable diseases, providing the investigation findings are published.

Image: Response to an outbreak. ACT Health

This article will focus on gastroenteritis ('gastro') outbreaks, i.e. those typically acquired through contaminated food or water, or contact with animals or infected people. Typical gastro presentations include abdominal pain, vomiting, diarrhoea and fevers.

Since 2003, there have been a total of 80 foodborne or suspected foodborne outbreaks investigated in the ACT. These outbreaks affected more than 1,200 people (ranging from two to over 100 people) and included over 100 hospitalisations and three deaths. Some of the etiological agents that caused these outbreaks include bacteria (Salmonella and Campylobacter), viruses (Norovirus), and toxins/chemicals (Bacillus cereus and Staphylococcus aureus toxins, histamine, waxy esters).

In the ACT, an outbreak can be identified through a number of mechanisms. The first may be through a Public Health Complaint[1] to the Health Protection Service (HPS), ACT Health. Complaints may be submitted by phone, email or post, and members of the public can raise issues around suspected food poisoning, food contaminations, and issues around pests, food handling and cleanliness of food business premises. In the past, such complaints have led to the identification of large foodborne outbreaks.[2] After a complaint has been made, HPS staff will investigate it, which may include inspecting the implicated food business premises. HPS staff will also interview the complainants, and anyone else who was identified as consuming food from the same venue, to determine the cause of any illness.

The second way an enteric outbreak may be identified is though the reporting of a notifiable condition[3] to the HPS. As per public health legislation,[4] laboratories and doctors are required to notify HPS of certain conditions, such as salmonellosis (illness caused by the bacteria Salmonella). In the ACT, HPS staff will interview all laboratory confirmed cases of salmonellosis, to determine where they may have acquired the illness. Salmonello-

sis may result from contaminated food from food businesses, social gatherings, food prepared in the home or contact with animals and their environments.

When the threshold for an outbreak is reached (the rule of thumb is usually two or more cases of gastro linked by time and place) a number of scalable steps occur within HPS. These steps range from managing the potential outbreak within the Communicable Disease Control Section (CDC), escalating to an Acute Response Team (ART) involving staff from across HPS, activation of the Health Emergency Control Centre, or in the event of a large scale outbreak, activation of the ACT Emergency Plan[5] (see page 9). Some examples of outbreaks that have been managed at each of these steps are provided below (Table 1).

In terms of the epidemiological investigation, HPS staff attempt to interview all those who ate at the implicated food business premises regardless of whether they were ill. By comparing information collected from all attendees, investigators try to determine the specific exposure that led to illness. In enteric outbreak investigations, some of the causes include contaminated food, ill food handlers or transmission of the pathogen by person-to-person contact.

Outbreak management escalation	***Examples***
CDC team	*Gastro outbreaks in childcare centres.* *2017 gastro outbreak associated with a Canberra restaurant involving 1 cases.*
ART	*A single case of measles.* *2016 gastro outbreak in a visiting school group involving over 30 cases.*
Health Emergency Control Centre	*2009 pandemic influenza (H1N1)* *2013 salmonellosis outbreak associated with a Canberra restaurant involving over 200 cases.*

Table 1: Examples of disease outbreaks managed at the different escalation levels.

As part of the outbreak investigation, HPS staff will also inspect implicated food business premises to determine if appropriate food safety practices are in place. Additionally, food and environmental samples may be collected from the premises, to again determine possible exposures for illness.

There are a number of powers under the *Food Act 2001*,[6] that may require food business premises to remedy identified issues (i.e. cleanliness, repair broken equipment, appropriate record keeping) or, even prevent the sale of certain foods or close the premises until such time as there is no longer a threat to public health.

At the conclusion of an outbreak investigation, CDC staff will be involved in writing an outbreak report, summarising the findings from all three investigation arms: epidemiological, environmental and laboratory.

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Environmental Health's role in a food contamination

Katayoon Mullen, Environmental Health, Population Health

Food complaints are regularly received by the Environmental Health team through the Customer Service Officer. Often the nature of the complaint is urgent, as in the case of a suspected food poisoning. To respond to such events, the Environmental Health Unit is trained to deliver a prompt and timely public health response. This article outlines the process that the team utilises from receiving a complaint through to what actions Environmental Health Officers take in the field. It also describes the often collaborative approach taken by officers within the Health Protection Service to support this work; in particular, the role of the Acute Response Team.

The Health Protection Service (HPS) receives a large number of calls, emails and enquiries from the public, food businesses and other stakeholders on a daily basis. Enquiries and complaints often relate to environmental health matters such as food poisoning outbreaks, deteriorated food, labelling issues and foreign matter in food. Environmental Health enquiries and complaints are forwarded to the Environmental Health Customer Service Officer (CSO).

The CSO considers every complaint received. Complaints that are a public health concern are assigned to an Environmental Health Officer (EHO) for investigation.

The Environmental Health (EH) team is made up of approximately 15 EHOs, two thirds of whom deal exclusively with food related issues. Within this food team, there is a specific 'complaints' sub-team dedicated to dealing with food complaints.

Food complaints are triaged; those that are identified as potential food poisonings are classified as urgent and actioned by EH within 24 hours. These complaints are treated as a serious public health risk due to the potential for an 'outbreak' where a number of people may be affected.

Image: Inspection by Public Health Officer. ACT Health

When recording a food poisoning complaint the CSO completes a Food Poisoning Questionnaire, which provides the investigating EHO with a three day food history, the type of suspected food that was eaten, as well as other details about the food such as the ingredients and whether drinks were consumed. The questionnaire also collects information about the symptoms, illness onset and duration and demographic information related to the complainant.

The EH works closely with the HPS Communicable Disease Control section (CDC) to investigate potential food poisonings. EH provides CDC with the questionnaire to monitor any other incidents of illness and to identify possible links to past or future notifications. HPS is in a unique position compared with other state and territory public health units because the CDC, EH and the ACT Government Analytical Laboratory (ACTGAL) Microbiology are all co-located in the same building. This offers the opportunity for the HPS to respond to reports of illness and food poisoning notifications immediately using a collaborative approach.

Image: Microbiological testing. ACT Health

An Acute Response Team (ART) is formed when there is a suspected food borne poisoning outbreak. The ART will determine whether or not the event is a food borne outbreak. The ART is made up of representatives from EH, CDC, ACTGAL Microbiology and the Health Emergency Management Unit, as well as the Public Health Physician.

EH's main role in food poisoning outbreaks is to investigate the implicated source of the outbreak and provide on ground support and expertise to the ART. On some occasions, EH will have to initially investigate a potential food poisoning outbreak prior to the formation of an ART. Specific activities include obtaining a menu of foods eaten at the event, determining suspect food preparation steps, taking statutory samples of suspect foods and taking environmental samples of the food premises. This also includes conducting routine enforcement and inspectorate activity and may extend to evidence collection and legal action, including prosecution. Depending on the outcome of this initial investigation, EH may need to take immediate regulatory action to mitigate any serious public health risk.

Retrospective analysis of previous food poisoning events provides the opportunity for HPS to improve its response to food poisoning incidents in the future. Previous improvements that have been recommended have included improving communications planning amongst HPS staff and inviting CDC staff to attend inspections of food premises with EH staff.

The EH team continues to work collaboratively with other HPS staff during critical incidents, such as food poisoning events. This approach will ensure that an effective public health response is delivered now and into the future.

Pharmaceutical recalls in the ACT

Kapildev Parikh, Pharmaceutical Services, Population Health

The term 'recall' is used for an action taken to resolve a problem with medicines or medical devices for which there are established deficiencies in quality, efficacy and/or safety. Medicines and medical devices are recalled periodically for a variety of reasons, including manufacturing errors, contaminations, product malfunction, and/or faulty parts. Regulators, suppliers, health professionals and consumers all have a role to play in the management of sub-standard products. The process starts with identifying potential problems through to mitigating the risk associated with the defective products. Suppliers, health professionals and consumers can report any concerns or problems with medicines and medical devices to the Therapeutic Goods Administration (TGA), which is part of the Australian Government Department of Health.

The TGA

The TGA regulates medicines and medical devices marketed in Australia by ensuring that they meet acceptable standards of quality, safety and efficacy (performance). When an issue is identified with a medicine or medical device, the TGA collects, investigates and actions potential concerns in partnership with the product supplier or sponsor. Subsequently, the suitable course of action is determined and communicated in the form of a notification and/or media release to affected parties. The information is disseminated by the states and territories' recall coordinators.

There are mainly two types of recalls, namely:

- Permanent removal from the market or from use; and
- Correction, removal to rectify the problem.

The TGA also considers various non-recall actions, such as safety alerts, product notifications and sponsor withdrawals in cases where removal from the market or use is not required. Recalls are also sub-classified in classes and levels based on the seriousness of the risk to public health and distribution channels respectively.

Images: Medicine. Source: Public Health Image Library

Classifications	*Meanings*	*Examples*
Class I	*An issue is potentially life-threatening or could cause a serious risk to public health*	• *Wrong product or strength* • *Microbial or chemical contamination with serious medical consequences*
Class II	*An issue could cause illness or mistreatment*	• *Mislabelling – wrong text* • *Missing or incorrect information - leaflets*
Class III	*An issue may not pose a significant risk to public health but withdrawal initiated for other reasons*	• *Faulty closure* • *Missing batch number or expiry date*

The recall notification includes details such as the name of the product, Australian Register of Therapeutic Goods (ARTG) number, dosage form or model, reason for recall, and recovery method.

The ACT recall coordinator

In the ACT, the Pharmaceutical Services Section (PSS) within the Health Protection Service in ACT Health, performs the role of ACT recall coordinator for medicines and medical devices. The ACT recall coordinator plays an important role in the recall communication process by advancing the TGA notifications to relevant stakeholders in a timely manner.

The role of the ACT recall coordinator includes to:

- Receive alerts and recall notifications from the TGA;
- Notify alerts and recall notifications to public and private hospitals;
- Notify relevant information to pharmacists and other professional groups;
- Notify external parties as required; and
- Checking progress of recall and follow-up actions.

In the event of Class I & II recalls where potential risk to public health is greater, the PSS works closely with relevant stakeholders to ensure that suitable actions are taken to quarantine affected products and that alternative treatment options are available to allow for ongoing patient care.

For further information about medicines and medical devices recalls in the ACT, please contact the PSS at HPS@act.gov.au.

Public health response to major fires

David Reid, Health Emergency Management Unit, Population Health

The ACT emergency services will respond to a major fire in the ACT to protect lives and the broader community. However, the emergency response to a major fire does not finish when the flames are extinguished. Public health practitioners have a role to consider the perceived and actual public health risks from a major fire.

This article presents actual and perceived public health risks, outlines ACT Health's current emergency management arrangements, and provides two case studies (pages 34 - 35) of major fires that had an impact upon public health.

Actual and Perceived Public Health Risks

An urban fire or bushfire will result in an immediate response from ACT emergency services to extinguish the flames. However, public health practitioners will also need to consider the actual and perceived public health risks of a major fire.

An actual public health risk may include burnt toxic materials and toxic combustion products released from the fire into the air, water and/ or soil. Toxic materials can be released by all types of fires, and can include asphyxiants, irritants, particulate matter, and polycyclic aromatic hydrocarbons (PAHs). These toxic materials can cause short- and long-term health issues in healthy individuals and vulnerable groups (e.g. children, elderly, pregnant women). A common public health impact is an increase in respiratory and cardiovascular disease among the affected communities.

A perceived public health risk does not come from factual information but, rather the community's perception of a major fire. The community will see the smoke from the fire, smell the burnt materials, and hear news stories from media outlets. The Australian Journal of Emergency Management noted that during all types of emergencies, the public will base decisions on perceived risks rather than on actual risks.[1] To combat this, public health practitioners should prepare public messaging in a clear, effective and timely manner.

Air Pollution from Smoke

Smoke is a prominent and visible public health risk from fires. An example of this is during hazard-reduction burns, which result in billowing smoke plumes and a significant increase in particulate matter in the air. This particulate matter can aggravate pre-existing heart or lung conditions, especially among asthma sufferers. As a preparedness measure, ACT Health has an air quality monitoring capability to monitor particulate matter levels across the ACT. Further information is available on page 41.

Image: Bushfire smoke. Source: ACT Emergency Services Agency

Water Contamination

Water supply contamination is an identified risk under the ACT Emergency Plan.[2] While unlikely, water supply contamination may occur when toxic substances from major fires settle in water catchments and dams and thereby, impact the community. These toxic substances may also become a public health risk due to an increased

Public health response to major fires (cont)

erosion rate and pollutant runoff into water catchments.[3] ACT Health is the lead response agency and has Standard Operating Procedures (SOPs) in place to conduct water quality monitoring.

Soil Contamination

Soil contamination can occur when toxic substances from the fire immerse into local areas. This can impact the environment, and, indirectly, the broader community. The Environment Protection Authority (EPA) is the lead response agency for such an event. ACT Health would provide support in this scenario, as required.

Image: Fire fighters. ACT Emergency Services Agency

Roles and Responsibilities of ACT Health

Under the ACT Emergency Plan, ACT Health is the supporting agency for all types of fires.[2] ACT Health is also the lead response agency for water supply contamination, and a supporting agency for air quality monitoring.

If a major fire occurs, ACT Health will respond by conducting these activities:

- Establish an Acute Response Team or the Health Emergency Control Centre (See page 9);
- Conduct monitoring activities (e.g. air quality, water quality, Emergency Department admissions etc);
- Conduct a Health Impact Assessment on perceived and actual public health risks;
- Provide advice on whether the local community needs to evacuate or seek shelter;
- Provide public health advice to the lead response agency to assist in the development of a community protection plan, which includes consideration on whether the local community needs to evacuate or seek shelter;
- Circulate public health messaging to the community; and
- Recovery activities (Long-term public health effects from exposure to toxic substances and ongoing monitoring).

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Public health response to major fires (cont)
Case Study – Mitchell Industrial Fire (2011)

A chemical fire broke out at a hazardous treatment facility in the Canberra suburb of Mitchell on 15 September 2011. The facility contained oils and electrical equipment to chemically treat and destroy Polychlorinated Biphenyls (PCBs).[1] The fire generated a highly visible smoke plume, resulting in school, business, and road closures in northern Canberra and the evacuation of the Mitchell industrial area.

Public health risks were minimal due to the smoke plume being pushed in an easterly direction away from residential areas. However, ACT Health actively supported the multi-agency emergency response[2] by:

- Providing advice to the incident controller about the health risks posed by the fire, including toxins that might be produced;
- Working closely with the EPA to advise the public during and after the fire; and
- Working closely with the EPA to interpret the results of environmental health testing, during and after the fire.[3]

Image: Mitchell Fire. 2011. Source: ABC News

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Public health response to major fires (cont)
Case Study – NSW Bushfires (2013)

On 17 October 2013, bushfires at Lithgow and Bilpin (NSW) produced large amounts of smoke that travelled across the Sydney metropolitan area. Air quality levels in Sydney were reported at the highest ever recorded levels on the air quality index, with pollution readings of up to 2500 (anything above 100 is considered poor air quality).[1] The bushfire smoke resulted in a significant increase in the number of people treated for asthma and breathing problems.

On 21 October 2013, NSW Health issued a public health warning due to poor air quality across NSW.[2] The messaging included generic advice to stay indoors and avoid prolonged outdoor exercise, and specific messaging to vulnerable groups, including children, older adults, asthma sufferers, and people with heart and lung conditions.

On 22 October 2013, NSW Health recorded that at the height of the bushfires:[1]

- 228 people attended hospital with breathing difficulties; and
- 778 others were treated by NSW Ambulance staff.

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Image: Bushfire Pollution, Sydney. 2013. Source: Australian Institute of Disaster Resilience

Extreme heat

David Reid, Health Emergency Management Unit, Population Health

Extreme heat is a natural hazard that can induce heat-related stress. Extreme heat is a unique hazard because it can affect the whole community due to prolonged heat exposure. The purpose of this article is to provide awareness to the broader ACT health sector on emergency preparedness for extreme heat.

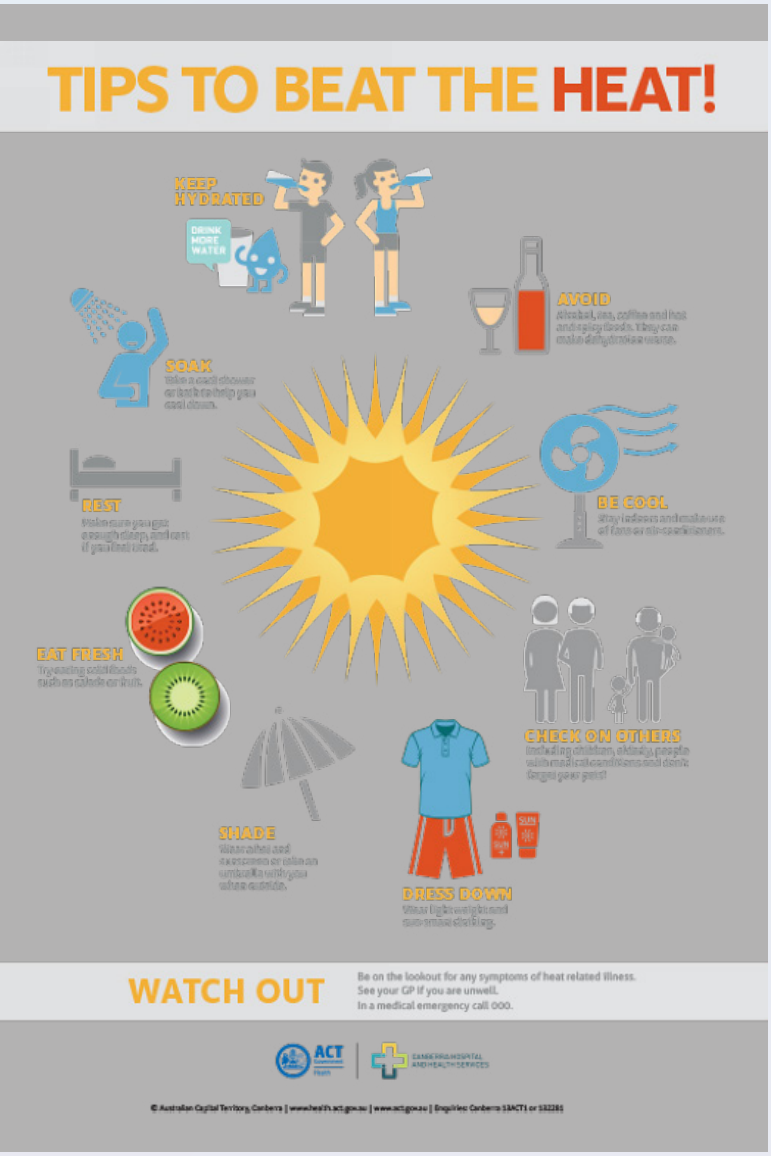

Image: Tips to Beat the Heat. Source: ACT Health

What is Extreme Heat?

An extreme heat event is a period of abnormally and uncomfortably hot weather that could impact on human health, community infrastructure, and services.

When does Extreme Heat occur?

The ACT experiences extreme heat during the summer season, especially in late January and early February. The combination of high maximum and minimum temperatures can result in sweltering heat during the day and uncomfortable sleeping conditions at night.

Between January and February 2017, the ACT experienced extreme heat conditions (with a mean temperature of 28^{O}C) on three non-consecutive days.[1,2] This is noting that there were 17 days in total recorded with maximum temperatures over 35^{O}C.[1]

Why is Extreme Heat dangerous?

Extreme heat can induce heat-related stress, which usually occurs when a person is exposed to a hot environment that overwhelms their body's ability to maintain a normal temperature. If not detected early and managed properly, people can potentially develop life-threatening illness (heat-stroke).

The early symptoms of heat-related stress include headaches, dizziness, faintness, nausea and vomiting. In babies, signs of heat-related stress include restlessness, irritability and a reduced number of wet nappies.

The extent of the heat wave will have a greater impact on vulnerable communities, including:

- Young children and babies;
- The elderly;
- Pregnant women;
- Obese individuals;
- Disabled individuals, particularly those with impaired mobility;
- Individuals on medications that promote fluid loss or reduce sweating;

Extreme heat (cont)

- Individuals who exercise or work outdoors;
- People who are not acclimatised to heat (e.g. overseas visitors); and
- Homeless persons.

Extreme Heat events can have broad impacts upon the community, including:

- Impact on energy consumption and resultant disruption to supply;
- Impact on the provision of essential services and infrastructure;
- Increased risk to the environment (e.g. plant growth);
- Impact on animals; and
- Increased risk of bushfire.

How does the ACT Government manage extreme heat?

The ACT Government has well-practiced emergency management arrangements that are informed by the *Emergencies Act 2004*, the ACT Emergency Plan, and associated sub-plans.

The ACT Government has a hazard-specific emergency plan for heatwaves, titled, 'The ACT Extreme Heat Plan'. The lead response agency is the ACT Ambulance Service (ACTAS) and ACT Health are a key supporting agency. The purpose of the ACT Extreme Heat Plan is to protect the community by:

- Promoting individual and community resilience; and
- Adapting to extreme heat conditions through delivery of a planned, managed, and effective whole-of-government response.

The ACT Extreme Heat Plan 2014 (the Plan) details the arrangements for a coordinated approach between ACT stakeholders in response to an extreme heat event. In the ACT, an extreme heat event is defined as three or more consecutive days with a mean temperature of 28^{O}C. The mean temperature is measured by the maximum temperature from one day and the subsequent night's minimum temperature. This is called the "Heat Health Temperature Threshold." An example of this is:

(Max. + Min.) / 2 = Mean Temperature

(38 ^{O}C +20 ^{O}C) / 2 = 29 ^{O}C

Mechanisms under the Plan can also be activated when there are fewer than three consecutive days with a mean temperature of 28^{O}C. For further information about how ACT Health will respond to emergencies, see the article on page 9.

Public Information on Extreme Heat

ACT Health is responsible for providing annual pre-season information and advice to the community, especially vulnerable populations. The Health Emergency Management Unit (HEMU) has developed a communications plan for the 2018-19 summer season, which covers:

- Extreme heat conditions (including single and multiple days of hot weather);
- Causes of heat-related stress; and
- Preventative measures for heat-related stress.

Information sheets are available on the ACT Health public website. This includes generic advice and specific advice to at-risk populations. Preventative measures include:

- Drink plenty of fluids and avoid dehydration
- Stay in a cool environment
- Reduce physical activity
- Take extra measures to increase cooling
- Look out for your neighbours, family and friends

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Extreme heat (cont)
Case Study – Heatwave Event (2017)

Between 9 - 12 February 2017, the ACT was on alert for extreme heat conditions following a Bureau of Meteorology forecast. An ACT emergency response was established to monitor high electricity demand.

Public messaging was disseminated prior to the forecast period, with messages occurring on Thursday 9 February until Sunday 12 February. Messages focused on the forecast weather conditions, how individuals could mitigate heat-related stress and a call to reduce the use of electricity to avoid load shedding.[1]

During the period, the ACT did not activate the Extreme Heat Plan because there were fewer than three consecutive days with a mean temperature of 28^{O}C. The table below demonstrates the mean temperature during this period:

	Thur 9 Feb	Fri 10 Feb	Sat 11 Feb	Sun 12 Feb
Max ^{O}C	36	41	41.6	31.9
Min ^{O}C	18.4	19.3	19.6	5.8
Mean		27.55	30.3	23.7

References

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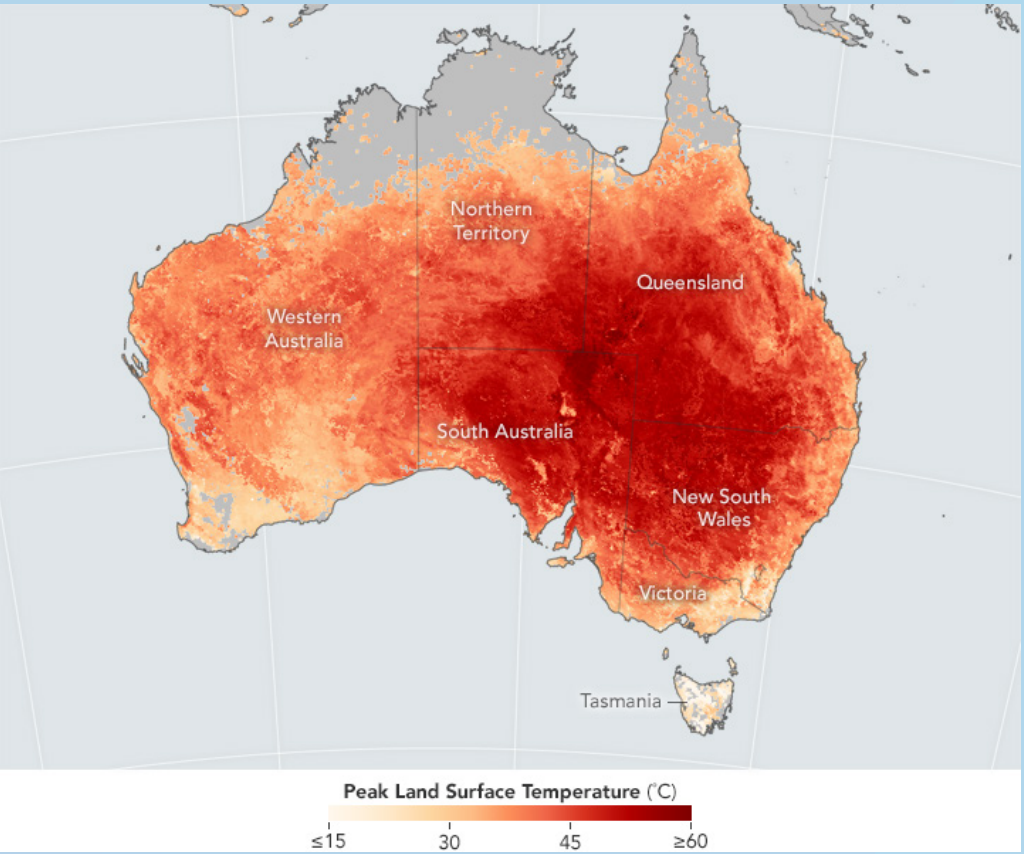

Image: Australian Heatwave 2017 Satellite Imagery. WikiCommons

Epidemic thunderstorm asthma: lessons learned from the Melbourne 2016 event

Dr Vanessa Johnston, Public Health Specialist Unit, Population Health

Epidemic thunderstorm asthma (ETSA) is triggered by an uncommon combination of high grass pollen and a specific kind of thunderstorm that exhibits rapid changes in wind, temperature and humidity.[1] The phenomenon can lead to a sudden and significant increase in individuals who are sensitised to circulating allergens. ETSA can result in an increase in acute respiratory symptoms, an increase in hospital admissions, and a high demand on health services.[1]

ETSA events are rare but have occurred in southeastern Australia, most notably in Melbourne and Wagga Wagga. One documented event occurred in Canberra in November 2010. Over 1,000 people presented to Canberra emergency departments over a one-week period with respiratory symptoms following a significant thunderstorm in the region.

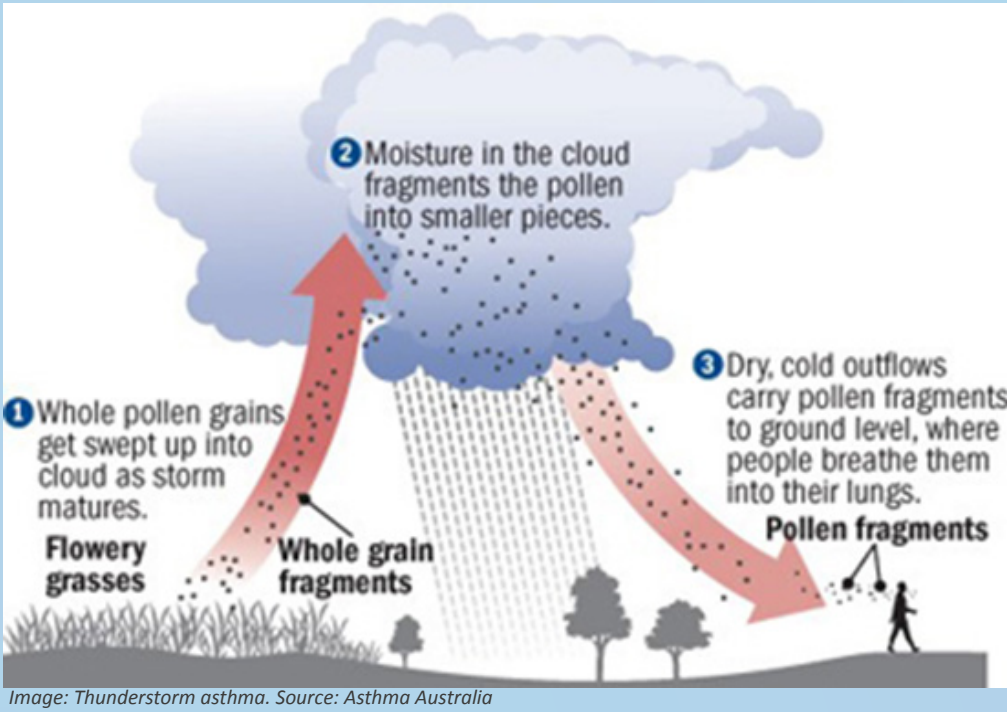

Image: Thunderstorm asthma. Source: Asthma Australia

In Victoria, on the 21 November 2016, an ETSA event occurred that resulted in approximately 9,900 presentations at hospital emergency departments. The deaths of nine people are possibly linked to this health emergency.

Following this incident, the Victorian Minister for Health announced a statewide review of the emergency response, led by Victoria's Inspector-General for Emergency Management (IGEM). The final report - Review of response to the thunderstorm asthma event of 11 - 22 November 2016 (hereafter, the Report)[2] - was published in late April 2017.

The Report highlighted the fact that there are no practical options to elim-

inate the risk of ETSA or reduce its likelihood. An ETSA event is also close to impossible to predict. Therefore, effective mitigation and preparedness activities are critical to reduce the impact of ETSA events. Preparedness campaigns should incorporate public education on the broader human-health impacts from aeroallergens, including the importance of optimising control of asthma and allergic rhinitis symptoms in sufferers generally, but especially leading into the pollen season.

The ACT Health Emergency Management Sub-Committee (HEMSC) considered the Report in July 2017 and agreed that 'pollen season' and ETSA should be added to the annual work plan. It was also agreed that ACT Health develop a communication strategy focusing on optimising control of asthma and allergic rhinitis at the beginning of the pollen season.

ACT Health developed and implemented a communication strategy for the commencement of the grass pollen season in 2017. The purpose of the Strategy is to inform the public about pollen allergies (i.e. asthma and hay fever) and how affected community members can reduce their symptoms during the ACT pollen season (see new ACT Health factsheet at http://www.health.act.gov.au/sites/default/files//Fact%20sheets/Asthma%20and%20Pollen.pdf). The Chief Health Officer has also written to General Practitioners, pharmacists and Emergency Departments to alert them to the risk of ETSA during grass pollen season and to review stocks of bronchodilators at this time of year.

ACT Health has also renewed the communications strategy for the 2018 grass pollen season, with a launch undertaken in National Asthma Week, in the first week of September 2018.

ACT Health has mature and well-practised emergency management plans and arrangements to ensure that the Directorate is able to respond to rapid-onset health emergencies, including ETSA events. ACT Health conducts annual pre-seasonal preparedness activities with Canberra Hospital, Calvary Hospital, the Capital Health Network, and other ACT Health sector partners.

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Health impacts of ambient fine particulate matter

Dr Vanessa Johnston, Public Health Specialist Unit, and Paula Sutton, Epidemiology Section, Population Health

Outdoor air pollution is a major environmental health issue globally. In 2012, the World Health Organization (WHO) estimated that approximately 3 million deaths per year are due to outdoor air pollution.[1] Whilst the majority of these deaths occur in low to medium income countries, outdoor air pollution accounted for 0.6 percent of the total disease and injury burden in Australia in 2011, representing a loss of 28,667 disability adjusted life years.[2] Particle pollution (also called particulate matter or PM) affects the health of more people than any other pollutant, both globally and in Australia. This article summarises the health effects of exposure to ambient PM, the sources of PM in the ACT and the policy and legislative context for air quality monitoring in the ACT.

Background

Particulate matter (PM) refers to a range of liquid or solid substances that are suspended in the air. These vary greatly in their nature, sources and size and cmay comprise both organic and inorganic particles, including smoke, dust, pollen, and liquid. Sources of PM include fuel combustion processes (as a result of energy production, transportation, wood combustion), traffic related pollution (tyre abrasion, road dust), secondary aerosols, and natural sources (sea salt, dust, plant material).

The Ambient Air Quality National Environment Protection Measure (AAQ NEPM) sets out national standards for the monitoring and reporting of common air pollutants, including PM.

The AAQ NEPM sets national air quality standards and goals for each of these, that are used by jurisdictions for monitoring and reporting against. The implementation of the AAQ NEPM is achieved through state and territory legislation and regulations. The NEPM is a voluntary scheme and therefore, does not compel or direct pollution control measures, or set penalties for non-compliance.

Image: Performance Monitoring Station. Source: ACT Health

Air quality monitoring in the ACT

ACT Health, through the Health Protection Service (HPS), is the agency responsible for maintaining and providing AAQ data from three Performance Monitoring Stations (at Civic, Monash and Florey) to the Environment Protection Authority (EPA).

The EPA (Access Canberra) is responsible for regulating PM pollution and compiling the ACT AAQ NEPM annual report provided to the National Environment Protection Council.

Data are continuously collected from the Florey and Monash monitoring stations for ozone, nitrogen dioxide, carbon monoxide, PM_{10} and $PM_{2.5}$. The Civic station monitors $PM_{2.5}$, PM_{10} and ozone.

Health impacts of ambient fine particulate matter (cont)

As the units, time frames and exposure standards are different for different pollutants, it is difficult to compare data. For ease of comparison, data readings in the ACT are converted into a standardised Air Quality Index (AQI) value using a specific formula, taking into account the relevant national standard for that pollutant (see http://www.health.act.gov.au/public-information/public-health/act-air-quality-monitoring/air-quality-index-aqi). The reported site AQI is the highest pollutant-specific value.

Image: Canberra. ACT Government

While ACT Health monitors several pollutants in the ACT, in reality deteriorations in air quality are almost exclusively due to an increase in particulate matter (PM). In Canberra, the main contributors to PM are smoke from wood heaters, bushfires and hazard reduction burns. Smoke is the main contributor to $PM_{2.5}$ levels.

Air quality in the ACT

The ACT has excellent air ambient quality by global standards. However, between 2010 and July 2015 there were 27 days where either the PM_{10} or $PM_{2.5}$ NEPM standard was exceeded at one of the Territory's air monitoring stations.[3] Many of these events appear to be correlated with wood heater use during winter and are confined to the Tuggeranong Valley.

Topography and local conditions play a part in increasing exposure to ambient PM. In Canberra, cold nights and clear skies during autumn and winter can lead to atmospheric temperature inversions. This describes a phenomenon where a cool layer of air close to the earth's surface has a warmer layer of air above it, preventing pollutants from dispersing. This has particularly been identified as a determinant of air quality in the Tuggeranong Valley. Atmospheric temperature inversion can cause transient deteriorations in air quality (particularly during winter) that resolve when the ground warms again the following day or when winds increase.

Health impacts of PM

Over the last decade, there have been significant advances in the understanding of the impacts of fine particle pollution on human health.[4,5] The health effects associated with exposure to ambient fine PM range from small, temporary changes in the respiratory tract and lung function, to premature death, and can include hospital emergency department visits, hospital admissions and impaired function (see Table 2).[6] A growing body of work points to $PM_{2.5}$ being the most significant in terms of health outcomes.

Long term PM exposure

Long term, chronic exposure (measured in months or years) to high levels of $PM_{2.5}$ has been found to be associated with increased mortality and morbidity worldwide. Most premature deaths are due to ischemic heart disease, stroke, chronic obstructive pulmonary disease, lower respiratory tract infections and lung cancer.[5,7]

Whilst the health impacts are more pronounced in countries that experience high levels of PM, there is also some evidence for areas with relatively low levels of air pollution. Importantly for the ACT context, health effects of long-term exposure to $PM_{2.5}$ have been observed at low

Health impacts of ambient fine particulate matter (cont)

levels similar to those commonly experienced in Australia. Most recent evidence points to there being a linear relationship between exposure to $PM_{2.5}$ and adverse health outcomes and there being no specific threshold for health effects.[5,8,9]

Long-term exposure to ambient $PM_{2.5}$ is also associated with central nervous, developmental and reproductive effects, but the strength of evidence is less than for respiratory and cardiovascular disease.[4]

Whilst the effects of long-term exposure to $PM_{2.5}$ are most pronounced for cardiovascular disease, there are similar effects of a smaller size for respiratory disease.

A 2013 assessment by the WHO's International Agency for Research of Cancer concluded that outdoor air pollution is carcinogenic to humans, and that the fine PM component is the component of air pollution most closely associated with increased cancer risk, particularly lung cancer.[1]

Short-term PM exposure

Short-term exposure is generally measured in hours or days. In Australia, short-term exposure to ambient PM (measured as daily exposure averaged over a 24 hour period) has been shown to have a small effect on daily mortality rates in Sydney, Perth and Brisbane, but with minimal impact on daily mortality in Melbourne.[4] A meta-analysis of Australian studies yielded an increase of 0.9 percent for cardiovascular deaths per $10\mu g/m^3$ for $PM_{2.5}$.[10] Short term (daily) exposure to $PM_{2.5}$ above background levels has been estimated to be responsible for 2,070 cardiovascular hospital admissions across all ages (1.4 percent) in 2013.[6]

There have been many studies of the impacts of short-term exposure to outdoor air on children and young people, as lung immaturity, greater ventilation rates and more outdoor activity make these groups more susceptible. An Australian Health Risk Assessment from 2013 including Sydney, Brisbane, Melbourne and Perth, estimated that each year approximately 120 hospital emergency department attendances for childhood asthma (0.6 percent) were attributable to short-term $PM_{2.5}$ exposure above background levels. Approximately 1,130 respiratory hospital admissions in 0–14 year olds (2.2 percent) were attributable to short-term PM_{10} exposures above background levels.[6]

Exposure to PM has also been shown to impact the lung function of elderly adults and adults with existing lung conditions, such as chronic obstructive pulmonary disease (COPD).[7] A European study across eight cities found associations between short-term exposure to PM10 and hospital admissions for asthma, COPD combined with asthma, and all respiratory disease for over 65 year olds.[11] In Australia, a health risk assessment estimated that annually approximately 2.5 percent of pneumonia and acute bronchitis hospital admissions at ages 65+ were attributable to short-term PM_{10} exposures above background levels.

Effects related to short-term PM exposure	Effects related to long-term PM exposure
Lung inflammation	*Increased lower respiratory symptoms*
Respiratory symptoms	*Reduced lung function in children*
Adverse effects on the cardiovascular system	*Increased chronic obstructive pulmonary disease*
Increased medication use	*Reduced lung function in adults*
Increased hospitalisations	*Reduced life expectancy, mainly due to cardiopulmonary mortality and probably to lung cancer*
Increased mortality	

Table 1: Summary of effects related to short term and long term PM exposure. Adapted from Morgan, Broome and Jalaludin[4]

Health impacts of ambient fine particulate matter (cont)

The health effects from exposure to PM depend on the nature of the exposure, the person's age and pre-existing health conditions (see Table 2 for population groups who are more susceptible to the effects of air pollution).

Health Effects	Who is susceptible?
Long-term exposure	
Increased mortality rates, reduced survival times, chronic cardiopulmonary disease, reduced lung function	*Observed in broad-based cohorts or samples of adults and children (including infants). All chronically exposed are potentially affected*
Short-term exposure	
Mortality	*Elderly, infants, persons with chronic cardiopulmonary disease, influenza or asthma*
Hospitalisation/other health care visit	*Elderly, infants, persons with chronic cardiopulmonary disease, pneumonia, influenza or asthma*
Increased respiratory symptoms	*Most consistently observed in people with asthma and in children*
Decreased lung function	*Observed in both children and adults*
Plasma viscosity, heart rate variability, pulmonary inflammation	*Observed in both healthy and unhealthy subjects. No studies of children*

Table 3: Summary of groups susceptible to adverse health effects from particulate exposure. Adapted from Morgan, Broome and Jalaludin[4]

Translating evidence into government action

In summary, the latest scientific literature highlights the adverse short- and long-term health effects of ambient $PM_{2.5}$. Further, almost all air pollution in the ACT is caused by fine PM. In response to this research evidence and ACT air quality monitoring data, the HPS is currently rescoping the Air Quality Standard Operating Procedure to focus solely on $PM_{2.5}$ levels for public health response purposes. An AQI will continue to be calculated and published for the rare event that deterioration in air quality is due to another measured pollutant (e.g. ozone). This is consistent with other jurisdictions, such as Victoria, Tasmania and Western Australia, where their health advisories are driven by PM levels.

The ACT Government has, for many years, actively worked on addressing the causes for PM pollution that are attributable to domestic wood heaters and longer term monitoring data indicates these efforts are having a downward impact on PM levels.[3] For example, the government has introduced the licensing of firewood merchants, has a wood heater replacement program and runs a range of public awareness campaigns, such as the 'Burn Right Tonight' campaign.

The ACT Government has also restricted the installation of wood heaters in new development areas, where planning studies show that they would have an adverse impact on air quality. The ACT Government has taken this approach for the development of the Molonglo Valley and, previously, with the suburbs of Dunlop and East O'Malley.

Further, in May 2016 the ACT Government, following work at the national level through the National Plan for Clean Air, introduced amendments to the *Environment Protection Act 1997* and associated regulations to tighten emission and efficiency standards for new wood heaters.

During the summer fire season, our Health Emergency Management Unit works closely with the Chief Health Officer and colleagues at the Bureau of Meteorology, the Environment, Planning and Sustainable Development Directorate, ACT Emergency Services Agency and ACT Parks and Conservation Service in preparing for and responding to bushfires. HPS and the Chief Health Officer are responsible for providing rapid public messages when PM levels significantly increase due to bushfires and hazard reduction burns.

Health impacts of ambient fine particulate matter (cont)

Future challenges

Climate change is projected to increase ambient PM pollution. In our region it is likely to increase bushfire frequency and intensity in south-eastern NSW and in the ACT, as well as increasing the need for hazard reduction burns. It is vital that Population Health and other key stakeholders work together to make the best use of air monitoring data for public health purposes, while continually working to reduce the source of PM pollution, where possible, into the future.

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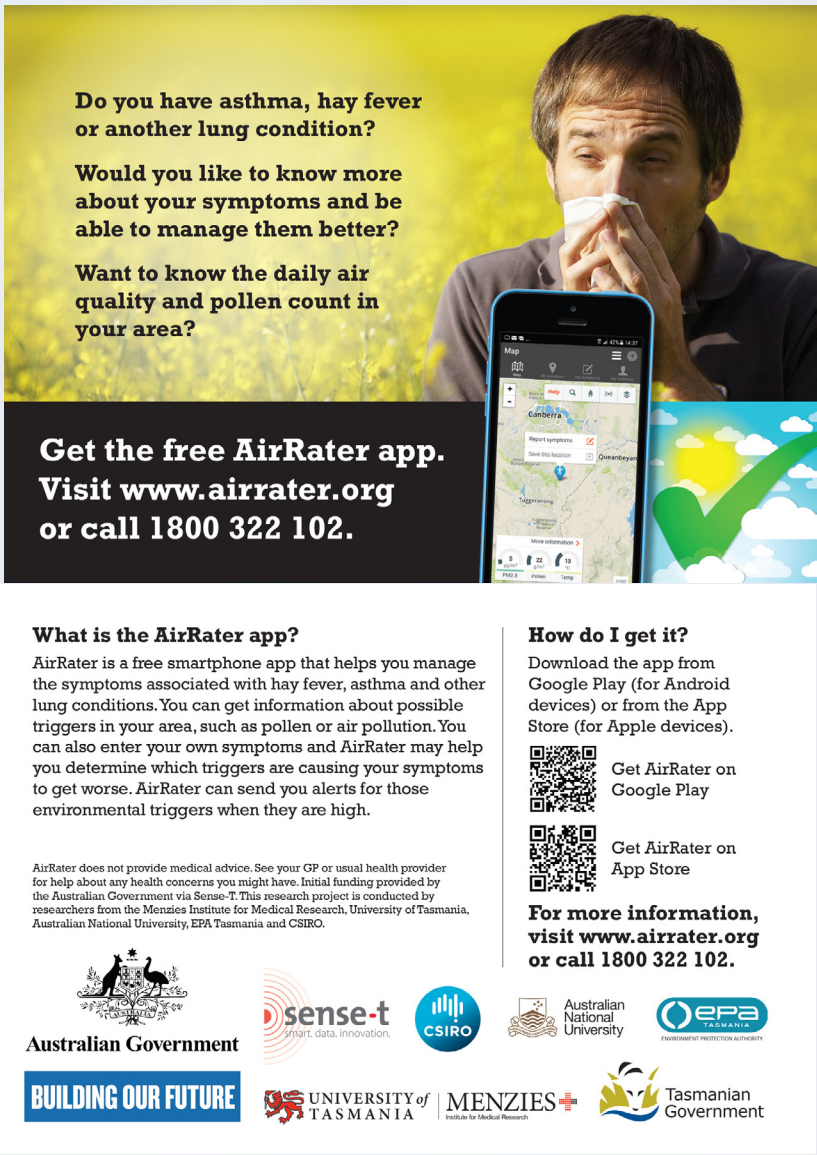

Image: AirRater App. ACT Health

Health Emergency Management Unit

Craig Cannon, Health Emergency Management Unit, Population Health

The Health Emergency Management Unit (HEMU) of the Population Health Division comprises emergency management specialists. The Unit's goal is to ensure that ACT Health is able to respond effectively to incidents, emergencies, disasters and public health risks, and manage the health aspects of major events within the ACT.

The HEMU's core functions include to:

- To be crisis ready at all times;
- Maintain the Health Emergency Plan;
- Administer the ACT Health Emergency Management Sub-Committee;
- Support the roles of the Chief Health Officer (CHO) under legislation (see page 12);
- Maintain the Health Emergency Control Centre;
- Test and review health emergency plans;
- Provide emergency management policy advice;
- Engage with ACT Government, the ACT Health sector, and Commonwealth stakeholders;
- Support hospital emergency planning;
- Conduct training and exercises (see below); and
- Maintain a 24/7 on-call duty officer capability.

First point of contact for incident notification

The HEMU maintains a 24/7 on-call function as a central point of contact for emergency notifications for ACT Health. The CHO, ACT public hospitals, and select HPS business units also maintain a 24/7 on-call roster. In the event an emergency occurs, the HEMU will work closely with emergency responders to ensure ACT Health is ready to respond. If the emergency requires a significant response from ACT Health, the HEMU will support the CHO in the appointment of a Health Controller and activation of the HECC.

Exercises

Exercises are a controlled, simulated activity used mainly for testing or practising procedures, processes or capabilities, or for familiarising or training personnel. The conduct of regular emergency exercises ensures policies, plans, procedures and training are appropriate for when an emergency occurs. The HEMU develops and conducts health emergency exercises on a regular basis and coordinates ACT Health participation in Whole of Government emergency management exercises. Conducting regular exercises is critical to prepare for an emergency.

Training

The HEMU has capacity to train staff on how to manage and support an emergency response. The ACT Government has adopted the Australasian Inter-Service Incident Management System (AIIMS) methodology for emergency management. AIIMS provides a management framework for all emergency types. The key principles of AIIMS are:

- Management by objectives – All incident personnel work towards one common set of objectives;
- Functional management – AIIMS uses core functions during an emergency response, including Operations, Logistics, Planning, Public Information, Intelligence, Investigation, and Finance;
- Span of control – The number of groups or individuals that can be successfully supervised by one person (up to seven subordinates);
- Flexibility – The emergency response can be adapted to different types of emergencies, based on the nature of the hazard, the scale of the emergency, the number of agencies involved, etc; and
- Unity of command – There is only one Incident Controller for any incident, who controls the emergency response. Also, each individual involved in the emergency response should report to only one supervisor.

The HEMU provides several types of training dependent upon an individual's emergency management role, including:

- AIIMS – For staff who attend the Health Emergency Control Centre (HECC) or Emergency Coordination Centre (ECC);
- Health Controller – for senior level staff who will run an emergency response (including an ART and HECC);
- Major Incident Medical Management and Support (MIMMS) Training Course - for registered medical practitioners, registered nurses, paramedics and ambulance officers in dealing with major incident medical management and dealing with multiple casualties.

The HEMU has a database of trained ACT Health staff, with over 200 trained in AIIMS, 18 ECC Liaison Officers and 34 Health Controllers. If you are interested in supporting emergency responses, or wish to receive further information on training dates, please contact HEMU at hpsops@act.gov.au.

Number of notifications of notifiable conditions received in the Australian Capital Territory, 1 January to 31 March 2018 (Q1 2018).

	Q1 2018	Q1 2013-2017 Average	Ratio Q1 2018: Q1 2013-2017 Average	Annual Total 2017	Annual Average 2013-2017
VACCINE PREVENTABLE CONDITIONS					
CHICKEN POX	39	17.0	2.3	106	71.2
INFLUENZA	111	57.6	1.9	3098	1544.0
MENINGOCOCCAL DISEASE (INVASIVE)	1	0.4	2.5	2	2.2
PERTUSSIS *	35	76.4	0.5	254	343.0
VARICELLA (UNSPECIFIED)*	24	37.0	0.6	208	164.8
VARICELLA-ZOSTER INFECTION (SHINGLES) *	71	35.0	2.0	274	173.6
GASTROINTESTINAL DISEASES					
CAMPYLOBACTERIOSIS	153	136.4	1.1	472	508.6
CRYPTOSPORIDIOSIS	13	21.4	0.6	83	45.2
HEPATITIS A *	1	1.2	0.8	2	3.2
PARATYPHOID	2	1.2	1.7	2	3.0
ROTAVIRUS**	4	N/A	N/A	N/A	N/A
SALMONELLOSIS	60	101.6	0.6	349	271.0
SHIGELLOSIS	3	2.0	1.5	7	7.2
TYPHOID	1	0.2	5.0	1	2.4
YERSINIOSIS	5	3.4	1.5	11	12.8
SEXUALLY TRANSMITTED INFECTIONS					
CHLAMYDIA	413	347.2	1.2	1466	1312.0
GONOCOCCAL INFECTION	88	50.0	1.8	251	165.2
VECTORBORNE & ARBOVIRUS					
DENGUE FEVER *	2	8.4	0.2	41	25.2
MALARIA	1	3.6	0.3	12	10.2
RESPIRATORY CONDITIONS					
TUBERCULOSIS #	9	6.2	1.5	23	22.2

All Diseases except tuberculosis are reported by onset date or closest known test date. Tuberculosis is reported by notification date.

* This condition includes cases that meet the probable and confirmed case definitions. Both probable and confirmed cases are nationally notifiable.

** Rotavirus became nationally notifiable on 1 January 2018. As such, historical data are not available.

For the relevant year, Q1 refers to 1 January to 31 March, Q2 refers to 1 April to 30 June, Q3 refers to 1 July to 30 September, Q4 refers to 1 October to 31 December.

N.B. Data reported are the number of notifications received by ACT Health. Data are provisional and subject to change.

The number of notifications received for all notifiable diseases in the ACT is available at: http://www9.health.gov.au/cda/source/cda-index.cfm

Overview

Vaccine Preventable Conditions

The number of notifications of chicken pox and shingles were higher in quarter 1 (Q1) 2018 compared to the same period in previous years. This is largely due to a change in the way notifications of chicken pox, shingles, and varicella (unspecified) are followed up by ACT Health, and not likely due to an increase in illness during this period. The new follow up process has meant that the number of varicella (unspecified) cases has decreased, as these notifications are now being classified as either chicken pox or shingles (as appropriate).

Influenza notifications in Q1 2018 were approximately two-times higher than during the same period in the previous five years. This is likely due to increased seasonal influenza activity in the Northern Hemisphere. Although activity was higher in Q1 2018, no particular demographic groups were affected and there was a mix of influenza virus strains notified.

There was one case of invasive meningococcal infection notified in the ACT during Q1 2018, which was identified as serogroup W.

Gastrointestinal Diseases

During the first quarter of 2018, there were 242 notifications of gastrointestinal illness with a potential foodborne origin. This compares to 422 notifications received during the corresponding quarter of 2017, a decrease of approximately 40 percent. There were 3 outbreaks of salmonellosis in Q1 2017 that contributed to the higher than usual number of notifications for Q1 2017 and influenced the 5-YR year-to-date (YTD) mean.

Notifications for campylobacteriosis, paratyphoid infection, shigellosis, typhoid infection and yersiniosis were all higher in first quarter of 2018 compared to the 5-year YTD mean.

Rotavirus became nationally notifiable as of 1 January 2018. There were 4 notifications of rotavirus during Q1 2018, which is likely an underestimate of cases in the ACT community, however historical comparison is not available.

There was one case of hepatitis A infection notified to ACT Health during Q1 2018. This case had reported consuming frozen pomegranate arils prior to becoming unwell, and matched the strain associated with the multi jurisdictional outbreak.

Sexually transmitted infections

Notifications of chlamydia and gonococcal infections were higher in Q1 2018 than the YTD 5-YR mean, continuing the general increasing trend.

Vectorborne and arbovirus infections

Two cases of dengue were notified to ACT Health during Q1 2018, with both cases acquiring their infection in Samoa. One case of malaria was notified during the same period, with infection likely acquired in Sierra Leone.

Respiratory conditions

During Q1 2018, a total of 9 cases of tuberculosis were notified, of which three were pulmonary and six were extra-pulmonary.

Number of notifications of notifiable conditions received in the Australian Capital Territory, 1 April to 30 June 2018 (Q2 2018).

	Q2 2018	YTD 2018	YTD 2013-2017 Average	Ratio 2018 YTD: YTD 2013-2017 Average	Annual Total 2017	Annual Average 2013-2017
VACCINE PREVENTABLE CONDITIONS						
CHICKEN POX	30	70	33.2	2.1	112	72.4
INFLUENZA	47	158	139.8	1.1	3098	1544.0
MENINGOCOCCAL DISEASE (INVASIVE)	0	1	0.8	1.3	2	2.2
MUMPS	0	1	0.8	1.3	4	2.6
PERTUSSIS *	41	82	152.8	0.5	254	343.0
PNEUMOCOCCAL DISEASE (INVASIVE)	4	6	7.6	0.8	23	19.4
VARICELLA (UNSPECIFIED)*	27	49	79.4	0.6	200	163.2
VARICELLA-ZOSTER INFECTION (SHINGLES) *	87	160	76.4	2.1	276	174.0
GASTROINTESTINAL DISEASES						
CAMPYLOBACTERIOSIS	103	256	246.4	1.0	472	508.6
CRYPTOSPORIDIOSIS	6	19	33.4	0.6	83	45.2
HEPATITIS A	0	1	1.6	0.6	2	3.2
PARATYPHOID	0	2	1.6	1.3	2	3.0
ROTAVIRUS**	7	11	N/A	N/A	N/A	N/A
SALMONELLOSIS	30	92	174.0	0.5	349	270.8
SHIGELLOSIS	3	6	3.0	2.0	7	7.2
TYPHOID	0	2	0.4	5.0	11	2.4
YERSINIOSIS	0	5	6.4	0.8	200	12.8
SEXUALLY TRANSMITTED INFECTIONS						
CHLAMYDIA	388	802	692.6	1.2	1466	1312.0
GONOCOCCAL INFECTION	79	168	86.6	1.9	250	165.0
VECTORBORNE & ARBOVIRUS						
DENGUE FEVER *	3	5	13.2	0.4	41	25.2
MALARIA	0	1	6.2	0.2	12	10.2
Q FEVER	1	1	0.4	2.5	0	0.8
ROSS RIVER VIRUS INFECTION*	1	1	6.2	0.2	12	10.6
RESPIRATORY CONDITIONS						
TUBERCULOSIS #	8	17	11.8	1.4	23	22.2

All Diseases except tuberculosis are reported by onset date or closest know n test date. Tuberculosis is reported by notification date.

* This condition includes cases that meet the probable and confirmed case definitions. Both probable and confirmed cases are nationally notifiable.

** Rotavirus became nationally notifiable on 1 January 2018. As such, historical data are not available.

For the relevant year, Q1 refers to 1 January to 31 March, Q2 refers to 1 April to 30 June, Q3 refers to 1 July to 30 September, Q4 refers to 1 October to 31 December.

N.B. Data reported are the number of notifications received by ACT Health. Data are provisional and subject to change.

The number of notifications received for all notifiable diseases in the ACT is available at: http://w w w 9.health.gov.au/cda/source/cda-index.cfm

Overview

VPD Surveillance Summary

Between 1 April and 30 June 2018, there were no cases of invasive meningococcal disease, mumps, measles, rubella, or tetanus notified in the ACT. There was one case each of invasive meningococcal disease (serogroup W) and mumps notified in Q1 2018.

The number of pertussis notifications in Q2 2018 (n=41) was the same as in Q1 2018. Pertussis notifications in 2018 have been substantially lower than in previous years, and the YTD total (n=82) was half the five-year YTD mean.

There were 30 chicken pox cases and 87 shingles cases notified in Q2 2018. The YTD totals for both diseases were 2.1 times above the YTD five-year mean, however this is largely due to a change in VZV case follow up from 1 January 2018. Improved follow up has led to a reduction in VZV unspecified notifications (0.6 times the five-year YTD mean) due to better classification of cases as either chicken pox or shingles.

Four cases of invasive pneumococcal disease were notified during Q2 2018, bringing the 2018 YTD total to six cases, similar to the number of cases seen during the same period in previous years. Of these cases, one was a fully-vaccinated infant infected with a non-vaccine serotype (24F). The remainder were adults who were either unvaccinated or had an unknown vaccination status.

Gastrointestinal Diseases

There were fewer gastrointestinal disease notifications in Q2 compared with Q1 2018, particularly for campylobacteriosis, cryptosporidiosis and salmonellosis. No cases of hepatitis A, paratyphoid, typhoid or yersiniosis were notified in Q2 2018. There were three notifications of shigella in Q2 2018, with one of these cases acquiring their illness locally.

There were two foodborne outbreaks in Q2 2018, with the aetiological agent identified as Salmonella Typhimurium MLVA pattern 03-10-10-09-496 in one of these. The other, in which 15 people were ill, was likely the result of Bacillus cereus toxins.

There were 19 outbreaks of non-foodborne gastroenteritis investigated in Q2, in which 341 individuals were unwell, with 15 hospitalisations and one death. In five of these outbreaks, norovirus was the implicated pathogen.

Sexually transmitted infections

Chlamydia notifications have remained similar in both Q1 and Q2 2018 compared to previous years, however gonococcal infection and syphilis notifications continued to increase in Q2 2018. Both gonococcal and syphilis notifications have been increasing among both males and females since early 2017.

Vectorborne and arbovirus infections

There were three cases of dengue fever notified in Q2 2018. All cases were returned travellers who acquired their infections in Sri Lanka, East Timor and Vanuatu.

The first cases for the year each of Ross River virus and Q Fever were notified in Q2, both with exposures in NSW.