Communicable Diseases Weekly Report

Week 31, 30 July to 5 August 2017

In summary, we report:

- Hendra virus – post-exposure prophylaxis for human contacts of an infected horse
- *Mycobacterium chimaera* – a fourth case identified in NSW
- Summary of notifiable conditions activity in NSW

For further information see NSW Health infectious diseases page. This includes links to other NSW Health infectious disease surveillance reports and a diseases data page for a range of notifiable infectious diseases.

Hendra Virus

Two additional cases of Hendra virus infection have been reported in unvaccinated horses in NSW this year, bringing the total to three cases in the last four weeks. The two recent infected horses were a 14-year-old horse on a property near Murwillumbah which was observed to be unwell on 30 July and died on 1 August, and a 12-year-old pony on a property near Lismore which was noted to be unwell on 3 August and euthanized by veterinary authorities on 5 August.

Laboratory testing confirmed Hendra virus as the cause of illness in both horses. The affected properties have been placed under movement restrictions by Local Land Services. Further details are available in the related NSW Department of Primary Industries (DPI) media release.

The local public health unit conducted risk assessments for all people who may have been in contact with both horses while they were potentially infectious. As a precaution post-exposure prophylaxis with monoclonal antibody therapy at Princess Alexandra Hospital in Brisbane was recommended by an expert panel for two human contacts. The contacts received the therapy at Princess Alexandra Hospital and their health is being monitored with the support of the local public health unit.

Hendra virus (originally called 'Equine morbillivirus') is a *paramyxovirus* of the genus *Henipavirus*. The only other agent in this genus is Nipah virus. Fruit bats (*Pteropus* species), also known as flying foxes, are the only known natural reservoir. Antibody to Hendra virus has been found in 20-50 percent of flying foxes in mainland Australian populations. Widespread testing involving 46 other species of animals and arthropods has not shown the natural presence of the virus in any species other than flying foxes.

Transmission from bats to horses is rare, and is thought to occur through contamination of horse-feed by infectious fluids from bats, such as from bat urine or bat birth products.

The infection has occasionally been passed onto people who have been in close contact with an infected horse. Only seven human cases have been documented, the last occurring in 2009. All seven had a high level of exposure to respiratory secretions and/or other body fluids of horses subsequently diagnosed with Hendra virus infection, or presumed to have Hendra virus infection through review of clinical and epidemiological evidence in the absence of samples for laboratory testing.

The symptoms of Hendra virus infection typically develop 5-21 days after contact with an infectious horse. Fever, cough, sore throat, headache and tiredness are common initial symptoms. Meningitis or encephalitis (inflammation of the brain) can develop, causing headache, high fever, and drowsiness, and sometimes convulsions and coma. Hendra virus infection can be fatal with four of the seven known cases dying from their infection. There is no Hendra virus vaccine to protect humans, however people who have had medium to high risk exposure to infected horses can be offered an experimental preventive treatment at Princess Alexandra Hospital in Brisbane.

Veterinarian and horse owners are at highest risk of exposure to Hendra virus. All people in close contact with ill horses at risk of Hendra should be aware of the DPI guidance on preventing the disease in humans and the use of appropriate personal protective equipment (PPE).

Further information for Hendra virus in humans see the Hendra virus fact sheet and Hendra virus contacts fact sheet.

Mycobacterium chimaera

A fourth NSW resident has been confirmed to have *Mycobacterium chimaera* infection linked to contaminated open-heart surgery equipment. The man in his 60s underwent open-heart cardiac surgery at Prince of Wales Hospital in 2015. A NSW Health media release related to this case was issued on 9 August 2017.

The previous three *M chimaera* cases identified in NSW linked to this route of exposure had also undergone open heart surgery at Prince of Wales Hospital in 2015.

Hospitals around the world have been affected by this issue which is thought to have arisen following contamination of heater-cooler devices during manufacture up until September 2014. This has been linked to at least 100 cases of *M. chimaera* infections in cardiac surgery patients worldwide. The first case in Australia was confirmed in Queensland in 2016.

Heater-cooler devices are essential to conduct open-heart cardiac surgery as they control the temperature of the blood during the period when blood circulation is conducted using a heart by-pass machine so that complex heart surgery can be undertaken. The design of heater-cooler devices often results in water from the machine being aerosolised and it may drift over the operating table. This means that it is essential that the water used in the machines are free from pathogenic organisms.

M. chimaera is a slow growing bacterium usually found in water or soil, and previously has been found as the cause of some human lung infections in patients with pre-disposing illnesses such as cystic fibrosis. It is part of the family of “non-tuberculous mycobacteria” which has some similarities to the bacteria that cause tuberculosis. In relation to open-heart surgery patients, the incidence of *M. chimaera* infection is also very low but the risk is believed to increase for other patients exposed in the same facility where a case has been confirmed.

Patients who have been infected with *M. chimaera* have presented with symptoms from 3 months to 5 years following surgery. *M. chimaera* infection is not spread from person to person.

In December 2016 NSW Health contacted surgical patients who may have been exposed to *M. chimaera* from contaminated open-heart surgery equipment used in four affected NSW public hospitals prior to August 2016 (when the contaminated equipment was replaced or removed from service). These patients have been advised to be alert to the most common symptoms of *M. chimaera* infection: persistent fevers, unexplained weight loss and unusual or increasing shortness of breath.

Information has also been sent to GPs and relevant specialists noting that some patients have presented with osteoarthritis, cholestatic hepatitis, nephritis, splenomegaly, or ocular disease. Specialist infectious diseases’ assessment is recommended as treatment of the infection includes combination antimicrobial therapy and may require repeat surgery if prosthetic heart valves or grafts are involved.

For further information see:

- NSW Health *M. chimaera* and cardiac surgery alert page.
- Clinical Excellence Commission (CEC) *M. chimaera* information and resources page.

Summary of notifiable conditions activity in NSW

The following table summarises notifiable conditions activity over the reporting period (Table 1).

Table 1. NSW Notifiable conditions from 30 July to 5 August 2017, by date received*

		Weekly		Year to date			Full Year	
		This week	Last week	2017	2016	2015	2016	2015
Enteric Diseases	Cryptosporidiosis	10	9	1082	776	647	1184	1040
	Giardiasis	55	38	2080	2403	2258	3481	3413
	Hepatitis A	1	2	19	27	53	41	72
	Rotavirus	44	39	540	298	233	750	1033
	Salmonellosis	44	46	2595	3185	2779	4544	4022
	Shigellosis	1	5	130	190	109	310	172
Respiratory Diseases	Influenza	6067	4842	24769	9732	7010	35541	30297
	Legionellosis	2	1	80	89	66	134	96
	Tuberculosis	12	6	271	287	256	534	445
Sexually Transmissible Infections	Chlamydia	372	489	17231	15699	13786	25990	22525
	Gonorrhoea	133	168	5565	4182	3275	7004	5395
Vaccine Preventable Diseases	Adverse Event Following Immunisation	3	9	199	159	118	257	186
	Meningococcal Disease	4	2	44	32	25	75	47
	Pertussis	128	114	3585	6403	4701	10957	12079
	Pneumococcal Disease (Invasive)	21	20	337	285	267	544	494
	Rubella	1	1	5	8	5	10	6
Vector Borne Diseases	Dengue	3	2	178	329	217	481	344
	Ross River	7	6	1337	345	1342	541	1635

*** Notes on Table 1: NSW Notifiable Conditions activity**

- Data cells represent the number of case reports received by NSW Public Health Units and recorded on the NSW Notifiable Conditions Information Management System (NCIMS) in the relevant period.
- Data cells in the 'Adverse Event Following Immunisation' category refer to suspected cases only. These reports are referred to the Therapeutic Goods Administration (TGA) for assessment. Data on adverse events following immunisation is available online from the TGA Database of Adverse Event Notifications.
- Only conditions for which at least one case report was received appear in the table. HIV and other blood-borne virus case reports are not included here but are available from the Infectious Diseases Data webpage.