

***Mycobacterium chimaera* – information for open-heart surgery patients**

Updated: 8 August 2019

What is the issue?

Some heater-cooler units used in cardiac surgery in the past were contaminated with a rare bacterium called *Mycobacterium chimaera* (or *M. chimaera*), and there is a small risk that exposure to these units in the operating theatre may lead to infections in exposed patients that can appear months after the surgery.

M. chimaera infections in cardiac surgery patients associated with a particular heater-cooler unit type made by LivaNova (Sorin) were first recognised in Switzerland. These devices, which were widely used around the world including Australia, are thought to have been contaminated during manufacture.

Over 100 patients worldwide have been identified with *M. chimaera* infections after cardiac surgery, including six people in NSW who had open heart surgery at Prince of Wales Hospital in 2015.

Genetic testing of clinical samples strongly links these six cases to the worldwide outbreak.

What is *Mycobacterium chimaera*?

- *Mycobacterium chimaera* (*M. chimaera*) is one of a group of bacteria called non-tuberculous *Mycobacterium* bacteria (NTM) that are commonly found in the environment, such as water and soil.
- *M. chimaera* only very rarely causes infections in people. Infections tend to develop very slowly and are more of a risk to people who have other health conditions.

What are heater-cooler devices?

- Heater-cooler devices are often used during cardiac surgery because circulating blood and organs must be maintained at specific temperatures.

How are heater-cooler devices associated with infection?

- *M. chimaera* and some other bacteria are able to grow in the water tank of heater-cooler units.
- Although the water in the heater-cooler unit does not come into contact with the patient's blood or body fluids, contaminated water droplets from the tank may transmit bacteria through the air and then find their way to the patient during the surgery.

Which open-heart surgery patients need to be aware of this risk?

Patients who had open-heart surgery at the following locations and in the time periods listed:

NSW Public Hospitals: Children's Hospital Westmead, Prince of Wales, Sydney Children's (all January 2012 – August 2016); St George (January 2012 – April 2018)

NSW Private Hospitals: Newcastle Private (July 2014 – September 2016), Norwest Private (January 2012 – August 2016), Prince of Wales Private (January 2012 – August 2016), St George Private (January 2012 – January 2017), The Sydney Adventist Hospital, Wahroonga (between 22 January and 18 June 2015), Westmead Private (June 2014 – December 2016)

ACT Hospitals: National Capital Private (November 2011 – August 2016), Canberra Hospital (July 2014 – November 2016)

This advice is provided for patients in NSW who have had open-heart surgery and who may be concerned about reports of a risk of infection with *Mycobacterium chimaera* during surgery as a result of contamination of some heater-cooler units.

It is important to remember that the benefits of surgery outweigh the very small risk of infection associated with these devices.

As this is an international problem, patients who had cardiac surgery in other states or territories, or overseas could also have been exposed.

Are certain groups of patients at higher risk of *M. chimaera* infection?

- *M. chimaera* and other NTM bacteria may cause infections in very ill patients including patients with compromised immune systems, underlying lung disease, diabetes, undergoing chemotherapy or certain invasive healthcare procedures, or receiving heart valve replacement surgery.

What has been done in NSW to reduce the risk?

- Sorin heater-cooler units susceptible to *M. chimaera* infection were used in the listed hospitals in NSW and some of these units have shown evidence of *M. chimaera* contamination.
- In NSW, public facilities have reviewed processes to minimise the risk of infection. All affected Sorin heater-cooler units in public hospitals have been replaced or removed from service.

What are the symptoms of *M. chimaera* infections?

- *M. chimaera* infections are slow-growing. Because of this it can take from several months to six years for an infection to develop.
- The most common symptoms reported by patients with this infection following open heart surgery are persistent fevers, increasing or unusual shortness of breath, and unexplained weight loss.
- Other signs of a possible *M. chimaera* infection may include:
 - fatigue
 - persistent cough or cough with blood
 - night sweats
 - muscle pain
 - abdominal pain
 - nausea
 - redness, heat, or pus at the surgical site
 - joint pain
 - vomiting

What should I do if I am experiencing symptoms?

- Contact your local doctor if you are experiencing symptoms and inform them that you had open-heart surgery.

Should I be tested even if I don't have symptoms?

- No, there is no test to show if people who are well are at risk of developing the infection in the future.

How is it treated?

- *M. chimaera* infections can be treated with combinations of specific antibiotics. Some patients who become infected may need prolonged treatment (from months to years).
- Additionally, although rare, some heart valve patients who develop *M. chimaera* infections after having cardiac surgery may require additional surgery. If untreated, *M. chimaera* infection could be fatal.

Can I become infected through contact with someone who is infected with *M. chimaera*?

- No, *M. chimaera* infections are not contagious. They do not spread from person-to-person.

What should I discuss with my doctor prior to open-chest surgery?

- Always discuss the benefits and risks of your surgical procedure with your doctor.
- For most patients, the benefit of undergoing a cardiac surgical procedure recommended by their doctor far outweighs the risk of infection. Ask your doctor what to expect following your procedure and when to seek medical attention.

Further information

- Therapeutic Goods Administration. Infections associated with heater-cooler devices - Alert - updated advice for health professionals and facilities (last updated 16 April 2019). <https://www.tga.gov.au/alert/infections-associated-heater-cooler-devices>
- NSW Health Safety Notice SN004/17. *Infection post cardiopulmonary bypass associated with heater cooler devices*. <https://www.health.nsw.gov.au/sabs/Documents/2017-sn-004.pdf>
- Australian Commission on Safety and Quality in Health Care (ACSQHC). National Infection Control Guidance: Non-tuberculous *Mycobacterium* associated with heater-cooler devices. 3 February 2017 (Second release). <https://www.safetyandquality.gov.au/sites/default/files/migrated/National-Infection-Control-guidance-for-NTM-associated-with-heater-devices-Feb-2017.pdf>