Mycobacterium chimaera and cardiac surgery patients
Information update for NSW Clinicians – 19 September 2018

Update:
A fifth confirmed case of *M. chimaera* infection has been reported in a cardiac surgery patient.

All five cases had undergone cardiac surgery at the Prince of Wales Hospital in 2015.

*M. chimaera* infections have been associated with exposure to contaminated heater-cooler devices (HCD) globally.

- Patients may have been infected during surgery via aerosols from a contaminated HCD depositing on exposed tissues. Serious infections may present up to 5 years after the surgery.

The overall risk of *M. chimaera* infection after cardiac surgery is very low, but is believed to be higher for:

- Patients who had cardiac surgery that included prosthetic material such as valve replacement or aortic grafts
- Patients who were exposed to the same heater-cooler device linked to a confirmed *M. chimaera* case.

The risk of infection may be increased for cardiac surgery patients who were operated on at Prince of Wales Hospital, including patients from Prince of Wales Private Hospital and Sydney Children’s Hospital, Randwick.

SUSPECTED CASE DEFINITION

1. Clinical criteria
   - One or more of the following:
     - Prosthetic valve endocarditis
     - Sternal wound infection
     - Manifestations of disseminated infection including embolic and immunologic manifestations [1]
   - AND negative routine bacterial cultures and negative serological tests for Q fever, bartonellosis and legionellosis.

2. Exposure criteria:
   - A patient who had surgery requiring cardiopulmonary bypass prior to the onset of symptoms at one of the hospitals listed in the Hospital Reference Table below (Page 2) during the time periods of exposure concern. Note that patients who had surgery in other states or overseas could also have been exposed.

TESTING for *M. chimaera*

- Collect mycobacterial blood cultures. Collect other tissue specimens as appropriate. You may need to discuss with your laboratory regarding appropriate culture collection media.
- Request mycobacterial culture in addition to routine M,C & S on any tissue specimens collected.
- Alternately, after the assessment of *M. chimaera* risk, infected tissue samples can be tested by PCR at the NSW Mycobacterial Reference Laboratory at NSWHP-ICPMR, if required.
- Please ensure that surgical date, details, and current pathology are included in microbiology requests.
- Once the diagnosis is suspected, empiric treatment and referral to a specialist centre is recommended.

TREATMENT for *M. chimaera*

- Regimens used to date are combination antimicrobials, e.g. clarithromycin, rifabutin, ethambutol, sometimes including a fluoroquinolone or amikacin. Please seek expert Infectious Diseases advice.
- Following initiation on a multi-agent antimicrobial regime consideration can be given to surgical reduction of the infectious burden, with ongoing long-term multi-agent antimicrobial therapy.

Further Information

- Contact the Clinical Excellence Commission on (02) 9269 5500 or email cec-hai@health.nsw.gov.au.

Dr Vicky Sheppeard
A/Executive Director, Health Protection NSW

[1] Including splenomegaly, arthritis, osteomyelitis, bone marrow involvement with cytopenia, chorioretinitis, hepatitis, nephritis, myocarditis. Some cases have presented with a sarcoidosis-like illness.
**Hospital Reference Table:** NSW / ACT Hospitals which used affected Sorin 3T heater-cooler devices.

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<thead>
<tr>
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<th>Hospital</th>
<th>Period of Exposure Concern</th>
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<tr>
<td><strong>NSW Public</strong></td>
<td>Children’s Hospital Westmead</td>
<td>January 2012 – August 2016</td>
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<td>Prince of Wales Hospital</td>
<td>January 2012 – August 2016</td>
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<td>St George Hospital</td>
<td>January 2012 – April 2018 *</td>
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<td>Sydney Children’s Hospital (Randwick)</td>
<td>January 2012 – August 2016</td>
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<tr>
<td><strong>NSW Private</strong></td>
<td>Newcastle Private Hospital</td>
<td>July 2014 – September 2016</td>
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<td></td>
<td>Norwest Private Hospital</td>
<td>January 2012 – August 2016</td>
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<tr>
<td></td>
<td>Prince of Wales Private Hospital</td>
<td>January 2012 – August 2016</td>
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<tr>
<td></td>
<td>St George Private Hospital</td>
<td>January 2012 – January 2017</td>
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<td></td>
<td>The Sydney Adventist Hospital (Wahroonga)</td>
<td>22 January 2015 – 18 June 2015</td>
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<td></td>
<td>Westmead Private Hospital</td>
<td>June 2014 – December 2016</td>
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<tr>
<td><strong>ACT</strong></td>
<td>National Capital Private Hospital</td>
<td>November 2011 – August 2016</td>
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<td></td>
<td>Canberra Hospital</td>
<td>July 2014 – November 2016</td>
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* The period of concern was extended for St George Hospital patients following the identification of a second contaminated heater-cooler device in April 2018.