

# DEADLINE WEDNESDAY 7 JUNE 2017

Mycobacterial infections due to contaminated heater cooler units used in cardiac bypass: an approach for infection control practitioners. Cheng AC, Stewardson A, Mitchell B, Stuart RL. <i>Infection, Disease &amp; Health</i> 2016; 21: 154–61. Assessment No: 030117		International Consensus Document (ICON): Common variable immunodeficiency disorders. Bonilla FA, Barlan I, Chapel H. <i>J Allergy Immunol Pract</i> 2016; 4 (1): 38–59. Assessment No: 030517	
01	<i>Mycoplasma chimaera</i> is an environmental organism belonging to the <i>M. avium/intracellulare</i> complex.	01	Patients should discuss their plans for travel with their specialist physician or paediatrician well in advance.
02	<i>M. chimaera</i> infections have been associated with the use of cardiopulmonary bypass machines during heart surgery.	02	With weekly subcutaneous immunoglobulin (SCIG) dosing, steady-state IgG levels are reached after approximately six months.
03	Heater cooler units (HCUs) provide temperature-controlled water for both cardioplegia fluid and diverted blood during surgery via one or more water tanks.	03	With the hallmark of hypogammaglobulinaemia, the immune defect common to all patients with CVID is loss of B-cell function.
04	Water has direct contact with the patient.	04	Up to 21% of the patients with CVID may have very low levels or absence of all immunoglobulin isotypes at presentation.
05	Cheng <i>et al.</i> report that approximately 50 clinical cases had been detected in the US, UK and Europe at the time of publication.	05	Measuring IgM and IgE antibody responses would overcome the difficulty of studying vaccine responses in patients who are already on IgG therapy.
06	It is postulated that HCU-associated infections occur due to aerosolisation of contaminated water housed within the unit itself.	06	There may be significant delay between the onset of symptoms and the establishment of the diagnosis of CVID.
07	Perfusionists are responsible for cleaning and disinfection of HCUs.	07	Conditions associated with acquired hypogammaglobulinaemia should always be considered during the evaluation of a patient with suspected antibody deficiency.
08	Water from HCUs only requires an annual microbiology review.	08	Autoimmunity occurs in approximately 2.5% to 30% of the patients with CVID.
09	HCUs should be connected and running for at least five minutes before water samples are taken.	09	CVID encompasses a group of heterogeneous secondary antibody failure syndromes characterised by hypogammaglobulinaemia.
10	Culture for <i>M. chimaera</i> takes 18 weeks to complete.	10	Most patients with CVID will have normal levels of total circulating B cells and natural killer cells in peripheral blood.
11	Bartram <i>et al.</i> reported in 2016 that some HCUs were intermittently positive for NTM.	11	IgA deficiency occurs with lower frequency overall, but most patients with IgA deficiency are asymptomatic.
12	Microbiology must consider investigating culture-negative surgical site infection samples for the presence of mycobacteria.	12	It is now possible to provide clear assessment of the outcome of HSCT as a potentially curative approach in patients with CVID with poor prognosis.
13	Sarcoidosis is an indicator to screening patients for potential <i>M. chimaera</i> infection.	13	Mutations to various redundant genes have been shown to be disease-causing in some patients who fulfil criteria for CVID.
14	Contingency plans should consider restricting use of NTM-positive HCUs for patients undergoing valve replacement.	14	The minimum laboratory studies that should be performed during evaluation included measurement of serum immunoglobulin levels and vaccine responses to at least 1 T-dependent and 11 T-independent antigens.
15	To reduce the risk of transmission, HCUs should be located outside the operating theatre.	15	Complete genome or exome sequencing may be highly informative for elucidating more common disease-causing genetic alterations.
16	If cases of infection are found, it is recommended that cardiologists should perform retrospect case reviews.	16	Many treating physicians with broad experience of immunodeficiency do not use antibiotic prophylaxis for those patients with chronic sinus disease.
17	At-risk patients are defined as those who have had cardiac bypass surgery within the past three years where testing of HCUs was not performed.	17	The polysaccharide pneumococcal vaccine is the most commonly used vaccine to assess T-dependent response and may be used reliably in adults and children older than 12 years.
18	Public health laboratories must be informed if a clinical case of <i>M. chimaera</i> is identified.	18	Malignancies of all types are increased in patients with CVID compared with the general population.
19	Surveillance of surgical site infections adequately provides assurance of post-operative infections with NTM.	19	The EUROclass trial was designed to bring consensus among several classification schemes.
20	Kohler <i>et al.</i> suggest that the current risk of <i>M. chimaera</i> infection posed to patients undergoing cardiac surgery is 1:10,000 or lower.	20	A patient's ability to mount normal functional antibody responses is assessed by measuring the serum levels of antigen-specific IgM antibody in response to vaccine antigens.

## REFLECTIVE LEARNING

01	Do you consider it appropriate that the protocols proposed by this article use culture even though this creates a delay in the results becoming available? What impact could a delayed positive result have? What alternatives might be worth considering and how would they be validated?	01	Critically appraise the different methods used to assess vaccine response in CVID patients.
02	Should protocols be expanded to consider other organisms? What ones would you suggest, and why?	02	Discuss the impact of this consensus document on CVID diagnosis.