

Introduction

- Mycobacterium chimaera* is responsible for a global outbreak due to contaminated heater-cooler units (HCUs) used in cardiothoracic surgery
- M. chimaera* infection related to this outbreak is associated with high mortality (estimate is at 50%) and the optimal treatment regimen has not been well established. Recent guidelines recommend combination therapy with a macrolide backbone together with ethambutol and a rifamycin; amikacin is also suggested

Objectives

- To describe Infection Control strategies undertaken by the University of Alberta hospital and Mazankowski Heart Institute (MAZ) to mitigate risk of infection with *M. chimaera* and diagnose suspect cases
- To describe the clinical course of locally acquired *M. chimaera* infection

Methods

- Descriptive review of Infection Control measures
- Retrospective chart review of all MAZ patients with *M. chimaera* isolates from any anatomic site with a history of cardiothoracic surgery from 2012 – present
- Data collection: date of cardiothoracic surgery, sites of infection, presenting symptoms, date of first positive culture, antimicrobial regimens, patient comorbidities and mortality

Conclusions

- M. chimaera* post cardiothoracic surgery has been challenging from an infection control perspective but appears to have been effectively mitigated through manipulation of the surgical laminar air curtain
- Locally, *M. chimaera* has been associated with significant (70%) mortality

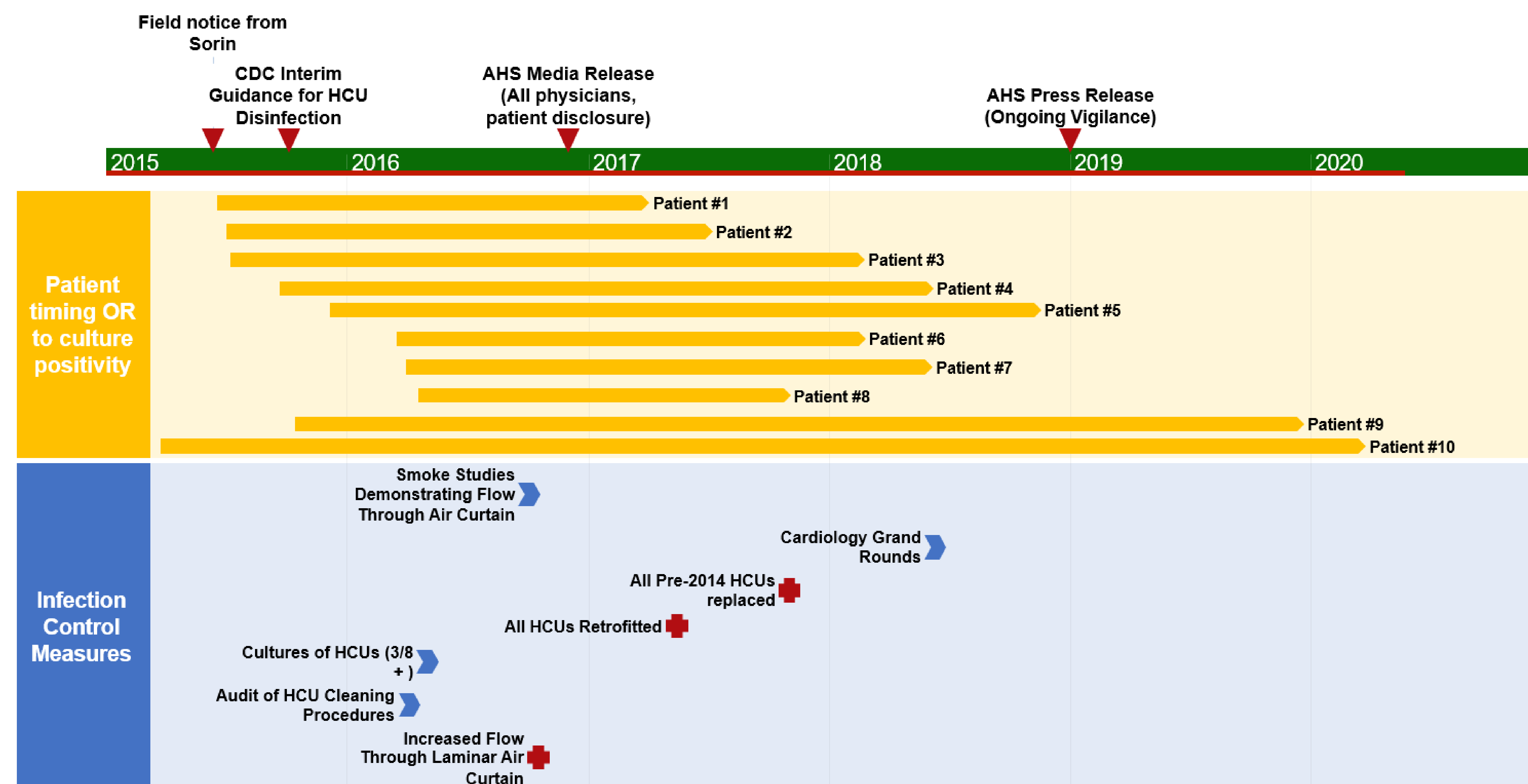
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 For further information contact bekula@ualberta.ca

References

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Results – Timeline of Infection Control Measures



Results – Patient Characteristics

Case #	Age at Time of Surgery	CCI	Date of Surgery	Surgery Type	Chronicity of Presenting Symptoms	Positive Culture Sites	Empiric Antimicrobial regimen	Antimicrobial toxicities	Outcome	Time from positive culture to death (days)
1	20	0	18/6/15	Mechanical AVR	12 months	Aortic pseudoaneurysm, Aortic graft (after 1 year of antibiotics)	AMK, AZM, CLO, EMB, RFB	Hyperpigmentation, myalgias, sensorineural hearing loss	Cadaveric root replacement 1 year on therapy; Alive	n/a
2	57	2	2/7/15	Bioprosthetic MVR and AVR	6 months	Blood, urine, sputum, liver	AMK, AZM, EMB, MXF, RFB	None	Death	146
3	68	3	9/7/15	Bioprosthetic AVR	12 months	Blood, urine	AZM, EMB, LZD, MXF, RFB	Cytopenias	Transitioned to comfort care	n/a
4	66	3	21/9/15	Ascending Aortic Graft	14 months	Blood	AZM, EMB, LZD, RIF	None	Death	183
5	64	2	7/12/15	Ascending Aortic Graft	6 months	Blood, urine	AZM, EMB, MXF, RIF	None	Death	75
6	71	4	17/3/16	Bioprosthetic AVR, Ascending Aortic Graft	14 months	Blood	AZM, EMB, MXF, RIF	Nausea, hepatitis, prolonged QTc	Death	101
7	74	3	30/3/16	Bioprosthetic AVR	6 months	Blood, urine	AMK, AZM, LZD, MXF, RIF	None	Death	159
8	74	6	18/4/16	Bioprosthetic AVR, ascending aortic graft	12 months	Blood	AMK, CLR, EMB, RFB	Tinnitus	Death	72
9	61	4	15/10/15	Bioprosthetic AVR, ascending aortic graft	3 months	Blood	AMK, AZM, EMB, MXF, RFB	Tinnitus, acute kidney injury, rash	Aortic homograft and re-do AVR; Alive	n/a
10	68	3	24/3/15	Bioprosthetic AVR	3 months	Blood, urine, sputum	AZM, EMB, LZD, MXD, RFB	None	No repeat OR; Alive	n/a

LEGEND: CCI = Charlson Comorbidity Index, AVR = Aortic Valve Replacement; MVR = Mitral Valve Replacement; AMK = amikacin, AZM = azithromycin, CLR = clarithromycin, CLO = clofazimine, EMB = ethambutol, LZD = linezolid, MXF = moxifloxacin, RFB = rifabutin, RIF = rifampin