

Foggy Yet Successful Endeavour of CPE Investigation : Lived Experience

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Outline of Presentation

1. Introduction
2. Traceback details and findings
3. Role of public health
4. Investigation and reporting
5. Actions taken
6. Challenges
7. Conclusion

Events Leading to Detection

- Attended a corporate infection control meeting on April 22, 2019
- Topic highlighted the emergence of CPE in Peel region and areas in the GTA
- Reviewed the classifications that fall under the CPE umbrella
- Another Chartwell home present spoke of their experience with admitting a resident into a shared room with a rectum swab positive for *Klebsiella pneumoniae*

Traceback

- *Klebsiella* triggered a recollection of documenting resident A's urine culture results
- Upon review of monthly infection control logs identified that the resident grew a positive culture for *Klebsiella pneumoniae* in her urine sample taken January 12, 2018
- Recognized that this was not reportable until May 1, 2018
- Continued to review the 2018 infection control log and found another resident's urine culture results yielded *Klebsiella pneumoniae*
- Resident B had another culture taken on October 3, 2018 which was positive for *E. coli* beta lactamase
- A subsequent urine culture growth of *E. coli* beta lactamase and *Klebsiella pneumoniae* on April 14, 2019

Findings

- The lab who processes the samples is required to report CPE results to the prescribing MD, public health and the nursing home. These steps were not taken for resident B's results on September 13, 2018, October 4, 2018, and April 14, 2019
- Contacted public health liaison about findings and who had not received notification on results. CPE is not prevalent in this region of southern Ontario, it is mostly concentrated in the GTA.

Role of Public Health

- Effective May 1, 2018, Carbapenemase-producing *Enterobacteriaceae* (CPE) colonization and infection was added to the list of diseases of public health significance
- Reporting requirements outlined in Ontario Regulation 135/18
- Follow-up required under Ministry of Health Infectious Disease Protocol, 2018

Appendix A: Disease-Specific Chapters

**Chapter: Carbapenemase-producing
Enterobacteriaceae (CPE) infection or colonization**

Effective: February 2019

Appendix B: Provincial Case Definitions for Diseases of Public Health Significance

**Disease: Carbapenemase-producing
Enterobacteriaceae (CPE) infection or colonization**

Effective: February 2019

Investigation

- Revision of lab slip that was forwarded by facility
- Utilized multiple resources
 - *Ontario's Standardized Questionnaire*
 - *PIDAC: Best Practices for Environmental Cleaning for Infection Prevention and Control*
 - *Annex A: Screening, testing and surveillance for antibiotic-resistant organisms (AROs)*

Public Health Ontario | Santé publique Ontario
Version: Jan 21, 2019 | iPHIS Case ID #:

Ontario CPE Investigation Tool

Legend: [Red diamond] for interview with case! [Red diamond] System-Mandatory [Blue diamond] Required [Red circle with slash] Personal Health Information

Cover Sheet	
Date Printed: _____ YYYY-MM-DD	[Red circle with slash] Client Name: _____ Enter name
Bring Forward Date: _____ YYYY-MM-DD	Alias: _____ Enter alias
iPHIS Client ID #: _____ Enter number	[Red circle with slash] Gender: Select an option [Red circle with slash] Age: Age
[Red diamond] Investigator: _____ Enter name	[Red circle with slash] DOB: _____ YYYY-MM-DD
[Red diamond] Branch Office: _____ Enter office	[Red circle with slash] Address: _____ Enter address
[Red diamond] Reported Date: _____ YYYY-MM-DD	_____ Enter address
[Blue diamond] Diagnosing Health Unit: _____ Enter health unit	[Red circle with slash] Tel. 1: ____-____-____
[Red diamond] Disease: <input type="checkbox"/> CPE - COLONIZATION	Type: <input type="checkbox"/> Home <input type="checkbox"/> Mobile <input type="checkbox"/> Work <input type="checkbox"/> Other, specify
<input type="checkbox"/> CPE - INFECTION	[Red circle with slash] Tel. 2: ____-____-____
<input type="checkbox"/> CPE - UNSPECIFIED	Type: <input type="checkbox"/> Home <input type="checkbox"/> Mobile <input type="checkbox"/> Work <input type="checkbox"/> Other, specify
[Red diamond] Is this an outbreak associated case?	[Red circle with slash] Email 1: _____ Enter email address
<input type="checkbox"/> Yes, OB # _____	[Red circle with slash] Email 2: _____ Enter email address
<input type="checkbox"/> No, link to OB # 0000-2018-007 in iPHIS	
Is the client homeless? <input type="checkbox"/> Yes <input type="checkbox"/> No	[Red diamond] Physician's Name: _____ Enter name
[Red circle with slash] New Address: _____ Enter address	[Red diamond] Role: <input type="checkbox"/> Attending Physician <input type="checkbox"/> Family Physician
[Red diamond] Language: _____ Specify	<input type="checkbox"/> Specialist <input type="checkbox"/> Walk-in Physician
Translation required? <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Other <input type="checkbox"/> Unknown
Proxy respondent	OPTIONAL
[Red circle with slash] Name: _____ Enter name	Additional Physician's Name: _____ Enter name
<input type="checkbox"/> Parent/Guardian <input type="checkbox"/> Spouse/Partner	Address: _____ Enter address
<input type="checkbox"/> Other _____ Specify	Tel: ____-____-____ Fax: ____-____-____
	Role: _____ Enter role
Verification of Client's Identity & Notice of Collection	
Client's identity verified? <input type="checkbox"/> Yes, specify: <input type="checkbox"/> DOB <input type="checkbox"/> Postal Code <input type="checkbox"/> Physician <input type="checkbox"/> No	
Notice of Collection	
<small>Please consult with local privacy and legal counsel about PHU-specific Notice of Collection requirements under PIPPA s. 16. Insert Notice of Collection, as necessary.</small>	
Investigator's Initials: _____	Designation: <input type="checkbox"/> PHI <input type="checkbox"/> PHN Other: _____
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Annex A: Screening, Testing and Surveillance for Antibiotic-Resistant Organisms (AROs)

In All Health Care Settings

Provincial Infectious Diseases Advisory Committee (PIDAC)

Revised: February 2013



Best Practices for Environmental Cleaning for Prevention and Control of Infections in All Health Care Settings, 3rd Edition

April 2018

Reporting

- Data entered in integrated Public Health Information System (iPHIS)
- Notification to local laboratories regarding CPE reporting
- Prompted further internal and external consultation
 - Associate Medical Officer of Health
 - Public Health Ontario

Actions Taken by Facility

- Applied PIDAC recommendations
- Provided literature and education huddles to all care staff with sign back
- Provided environmental cleaning measurements to environmental service manager, who then held an emergency meeting with service staff (housekeeping and laundry)

Challenges

- Resident B is MRSA positive with routine precautions in place. A handful of care staff expressed lack of concern because the resident already has a ARO.
- Educated staff on the difference between MRSA/VRE and CPE. Explanation of biofilm allowed for better compliance and buy in from the frontline care staff
- Re-iterated the importance of hand hygiene and being aware of how resident's personal care items are kept and stored in the bathroom
- Educated staff to place soiled clothes in separate bag so that laundry know to handle with extra precaution

Conclusion

- Resident A has been treated with Fosfomycin for *K. pneumoniae* and Macrobid for *E.coli*
- Resident A has not had another culture of bacteria classified under CPE. She has had *E.coli* identified in urine culture on May 31, 2019 and September 19, 2019
- Resident B was initially treated with Noroxin for first positive culture of CPE. Monural was administered twice for 2nd and 3rd positive culture of CPE
- Resident B had a follow up urine culture on April 26, 2019 with ESBL still present but asymptomatic for last 6 months

References

- Ministry of Health and Long Term Care. (2018). *Infectious Diseases Protocol, 2018* [PDF File]. Retrieved from http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Infectious_Diseases_Protocol_2018_en.pdf
- Ministry of Health and Long Term Care. (February 2019). *Appendix A: Disease-Specific Chapters Chapter: Carbapenemase-producing Enterobacteriaceae (CPE) infection or colonization* [PDF File]. Retrieved from http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/CPE_chapter.pdf
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