

Global threat, provincial action: Carbapenemase-producing organisms in British Columbia

Carbapenemase-producing organisms (CPOs) are bacteria with an acquired genetic resistance to broad-spectrum antibiotics, including the carbapenem family of drugs. Provincial data from as early as 2008 indicate that CPO-harboring bacteria were initially introduced into BC's health care system by travelers returning from endemic regions who often had exposures to invasive health care procedures. To date, the most frequently identified CPO genes in BC include the New-Delhi Metallobetalactamase (NDM), *Klebsiella pneumoniae* carbapenemase (KPC), and OXA-48 genes. Residing on plasmids of bacteria such as *E. coli*, *K. pneumoniae*, and *Enterobacter spp.* that normally colonize human intestines, CPO genes are global in origin. NDM genes, for example, have been traced to India and Pakistan, while KPC originated in the United States.¹ Closer to home, approximately 200 CPO cases have been identified in BC over the last 7 years,² including clusters and transmissions within and across facilities.

In response to the worldwide emergence of CPOs and their potential impact on patients, the public, physicians, and care providers, the BC Ministry of Health requires the implementation of a provincial CPO program for the purpose of consistent surveillance and reporting in all acute care facilities. Developed with significant input from medical microbiologists, epidemiologists, infection control experts, and public health professionals, BC's new CPO surveillance protocol (July 2014) outlines

the expectations for CPO screening, specimen types and collection, data collection, analysis and reporting, and outbreak management. Additional details about BC's provincial CPO program are available from the Provincial Infection Control Network of BC at <http://s.picnet.ca/cpo>.

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As the new health care associated pathogen on the block, CPOs are an important challenge in BC because of the serious therapeutic and infection control issues they pose. We must all take an active role to preserve the armamentarium we currently have and prevent further emergence of multidrug-resistant organisms.

Physicians can help prevent the spread of CPOs. Some recommended practices are to:

- Prescribe antibiotics responsibly and wisely. Unnecessary and inappropriate use of antibiotics may provide pressures for development of resistant strains.
- Wash your hands with soap and water or an alcohol-based hand sanitizer before and after caring for patients.
- Abide by your facility's infection control policies and recommendations. For example, wear gloves and a gown before entering the room of a patient with CPO infection or colonization.
- Ask if a patient has received medical care in another country.
- Inform your facility's infection control program if you are admitting a patient known to have CPO.
- Inform patients of risks associated with seeking health care in countries endemic with CPOs.
- Be aware of the number of cases of CPO in your facility or health authority:
 - VCH: www.vch.ca/your_stay/infection-control/outbreaks/.
 - FHA: www.fraserhealth.ca/your_stay/infection_prevention_and_control/current-active-outbreaks/current-active-outbreaks.
 - IH (formerly VIHA): www.viha.ca/mho/public_health_alerts/active_outbreak_list.htm.
 - IHA: www.interiorhealth.ca/yourenvironment/communicable_diseasecontrol/outbreaks/Pages/default.aspx.
 - PHSA: www.phsa.ca/AgenciesAndServices/current-outbreaks.htm.

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References

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2. BC Public Health Microbiology and Reference Laboratory. *Laboratory Trends*, 16 April 2014. Accessed 28 August 2014. www.bccdc.ca/NR/rdonlyres/654D5209-8A41-46DC-BF3A-0884D26DCCD6/0/Apr2014LaboratoryTrends.pdf.

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