

Healthcare-associated infections surveillance report

Carbapenemase-producing organisms (CPO)

June 2015

Highlights (July 18 – December 4, 2014)

- CPOs are an important emerging medical concern in healthcare settings
- A provincially mandated surveillance program for CPO was implemented in July 2014
- This is the first provincial surveillance report on CPOs in BC
- 21 new cases of CPO were identified among patients in BC acute care facilities
- 5 of those cases were related to healthcare exposure outside of Canada

Carbapenems are a class of antibiotic usually reserved to treat serious infections, and are often considered one of the antibiotic treatments of last resort. Recently, some bacteria have developed resistance to carbapenems by producing an enzyme (carbapenemase) that breaks down the structure of these antibiotics. These very antibiotic-resistant bacteria are called carbapenemase-producing organisms (CPO). CPO can arise through the acquisition of carbapenemase genes from other bacteria. Some common examples of these genes are the New-Delhi Metallo- β -lactamase (NDM) and *Klebsiella pneumoniae* carbapenemase (KPC). The NDM genes were first identified from people who had healthcare exposure in South Asia, and are considered common in some healthcare settings. KPC-producing organisms were first identified in the US, and are now regularly found in many countries.

CPOs are usually spread person-to-person through contact with infected or colonized people, or via contaminated surfaces or medical equipment. Many people with CPO will have the germ in or on their body without causing symptoms (this is called colonization). Others may have infections in their body sites (such as bloodstream, urinary tract, surgical site), with very limited antibiotic treatment options and poor clinical outcomes. Good hand hygiene by both healthcare workers and patients, and careful cleaning and disinfection of rooms and medical equipment, can help prevent the spread of CPOs.

CPOs have been identified more frequently in healthcare settings in recent years. Since 2010, the BC Public Health Microbiology and Reference Laboratory (BCPHMRL), along with the microbiology laboratories in healthcare facilities and communities, have been working collaboratively on testing for and monitoring CPOs in the province. Following an outbreak of CPO identified in a hospital in February 2014, a provincially mandated active surveillance program for CPO was established in the acute care facilities in BC. Since July 18, 2014, all laboratory isolates recovered from patient specimens that are suspected of harbouring a carbapenemase gene are submitted to BCPHMRL for

confirmatory testing. If an isolate from a patient in an acute care facility is identified with a carbapenemase gene for the first time or with a new carbapenemase gene, it is considered to be a new case of CPO, and is reported to the Provincial Infection Control Network (PICNet).

This report summarizes the new cases of CPO identified in BC acute care facilities during July 18 - December 4, 2014 (from the provincial surveillance program start date to the end of fiscal quarter 3 in 2014/2015). A total of 21 new cases were identified. Of these, 15 were identified in Fraser Health and 6 were in Vancouver Coastal Health. The majority of the cases (17/21) harbored NDM gene, followed by KPC gene (3/21). Five cases were related to healthcare exposure (e.g. overnight hospitalization, certain medical or surgical procedures) outside Canada, and seven cases had close contact with a CPO patient in the past six months, with no specific factors identified in the remaining cases.

Number of new cases of CPO identified in BC acute care facilities by carbapenemase gene
(July 18 – December 4, 2014)

Health authority	NDM	KPC	OXA-48	Total
Fraser Health	13	2		15
Interior Health				0
Island Health				0
Northern Health				0
Vancouver Coastal Health	4	1	1	6
Provincial Health Services Authority				0
Total	17	3	1	21

For more information about CPO and the provincial surveillance program, please visit the PICNet website at www.picnet.ca.