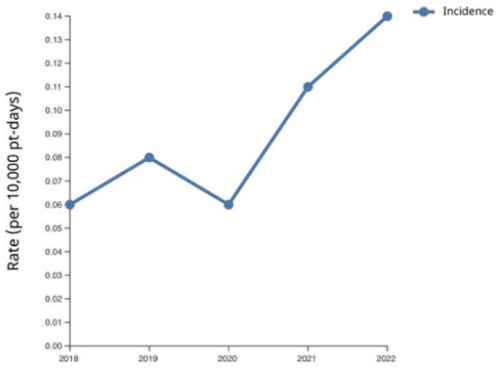
Antimicrobial Stewardship Matters

Antimicrobial Stewardship | September 2025

Carbapenem Conundrum #2

At a Glance:

- Carbapenems are broad-spectrum antibiotics that should be used judiciously to preserve their effectiveness.
- Carbapenem resistance rates in Canada are lower than most other countries worldwide but have been increasing over time.
- Reserve carbapenems for infections with confirmed or suspected ESBL or ampC producing organisms; otherwise, alternative antimicrobials are equally effective (see Page 2 for more details).
- Meropenem is one-third the cost of imipenem and should be used preferentially (except for infections due to Nocardia spp or nontuberculous Mycobacteria spp).



Incidence rates of healthcare-associated carbapenemase-producing Enterobacterales infections, 2018-2022 (CNISP). Figure credit: Canadian Antimicrobial Resistance Surveillance System (CARSS) 2021-11-28.

How is Alberta Health Services (AHS) ensuring carbapenems are being prescribed responsibly?

AHS Antimicrobial Stewardship (AMS) has been working with you to optimize carbapenem use. We are excited to share carbapenem utilization data for the 11 acute care sites involved in the Phase I launch. We look forward to extending these benefits, with North Zone AMS launch planned for February 2026.

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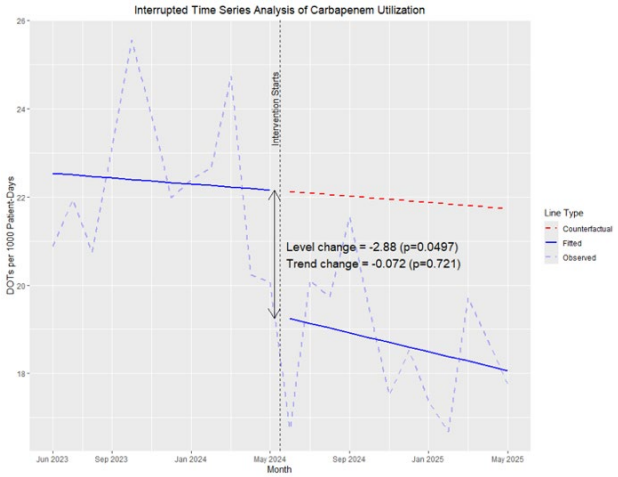
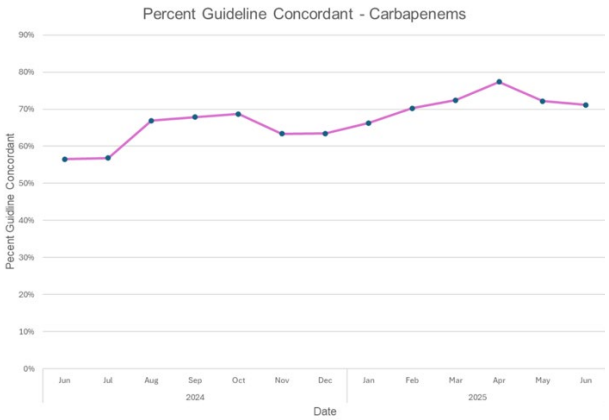
Alberta Health Services
Antimicrobial Stewardship

Carbapenem use has decreased from 22.3 to 18.6 days of therapy (DOT)/1000 patient-days.

Guideline-concordant prescribing of carbapenems has increased from 56 per cent to 71 per cent.





Carbapenem Spectrum of Activity and Clinical Guidelines for use

Refer to Bugs & Drugs for spectrum of activity for meropenem, imipenem and ertapenem.
Refer to AHS formulary guidelines for meropenem, imipenem and ertapenem.

How can you optimize your carbapenem prescribing?

Common guideline-discordant carbapenem prescriptions	What can you prescribe instead?	
	Scenario	Preferred antibiotic options˜
Sepsis of unknown source (in the absence of risk factors for multidrug resistant organisms^)	Community acquired	Piperacillin-tazobactam
	Known MRSA, injection drug use, antibiotics in the past three months, vascular catheter/medical device	Piperacillin-tazobactam + Vancomycin
Diabetic foot infections in hospitalized patients requiring intravenous therapy	High quality cultures are available	Antibiotics targeted to culture results
	Cellulitis with intact skin or acute onset infected ulcer	Cefazolin
	Infections with chronic ulcer, drainage or fistula - Moderate to severe - Limb threatening	 Cefazolin + metronidazole Piperacillin-tazobactam

Hospital acquired pneumonia	<= four days hospitalization	Ceftriaxone/azithromycin OR Levofloxacin
	> four days hospitalization, non ICU/ventilated, no prior broad spectrum antibiotics	Ceftriaxone OR Levofloxacin
	>four days hospitalization, prior (three months) broad spectrum antibiotics, structural lung disease (bronchiectasis/cystic fibrosis), immunosuppression	Piperacillin-tazobactam
Urinary tract infection/ pyelonephritis/urosepsis	Non-critically ill patients who do NOT have ESBL/ampC producing organisms in the last 12 months	Ceftriaxone
Gram negative bacteremia with ESBL/ampC producing organism	Documented susceptibility to an oral agent such as sulfamethoxazole-trimethoprim or ciprofloxacin and patient able to take/absorb oral medication	Susceptible oral agent such as sulfamethoxazole-trimethoprim or ciprofloxacin

^ risk factors: previous ESBL/ampC producing organisms in the last year, recent piperacillin-tazobactam therapy or recent travel to South Asia.

~ Refer to Bugs & Drugs for antibiotic options in patients with a confirmed penicillin allergy or confirmed/risk factors for MRSA

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