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# Real-life Experience with Ceftolozane-Tazobactam in Canada: Results of the CLEAR (Canadian LEadership on Antimicrobial Real-life Usage) Registry

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### Introduction

Over the past several years in Canada, when new IV antimicrobials are approved and introduced onto the market, they are used primarily by infectious diseases/medical microbiology specialists and frequently used to treat "off-label" infectious indications. There is commonly limited data sharing between clinicians regarding why they chose to use these new IV antimicrobials (i.e., because of failure, resistance, or adverse effects associated with use of other antimicrobial agents), the types of infections treated, and how (i.e., dosage regimen, duration of therapy, as monotherapy or in combination with one or more other antimicrobial agents) they use new IV antimicrobial agents in real world scenarios. The CLEAR (Canadian LEadership on Antimicrobial Real-life Usage) registry is an initiative coordinated by the Canadian Antimicrobial Resistance Alliance (CARA).

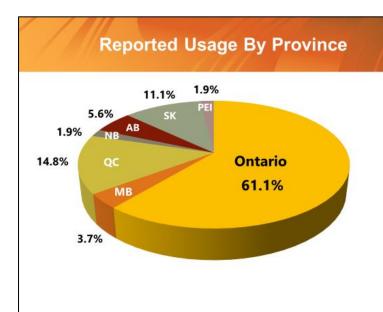
CLEAR is a new, national usage registry platform that enables the accumulation of knowledge regarding the clinical usage of new IV antimicrobials recently introduced into the Canadian marketplace. In this study, CLEAR is accumulating data on of ceftolozane/tazobactam across Canada the usage (https://is.gd/CLEAR\_ceftolozanetazobactam).

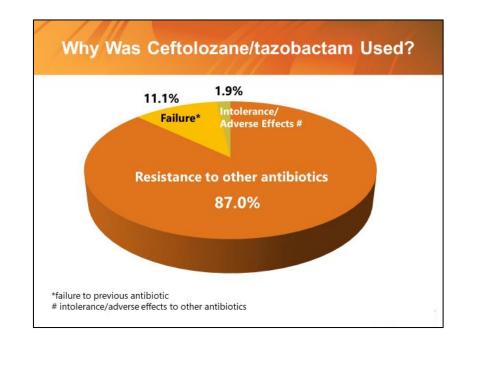
CLEAR also has IV ceftobiprole and IV fosfomycin in the Links access these registry. to surveys: https://is.gd/CLEAR\_ceftobiprole https://is.gd/CLEAR\_IVfosfomycin

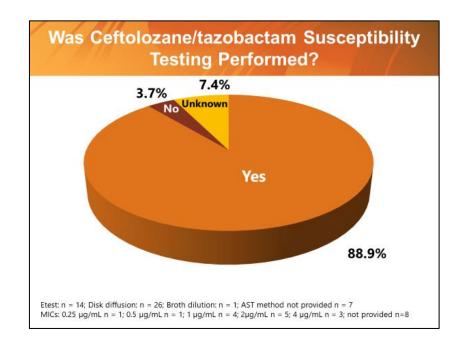
# Materials and Methods

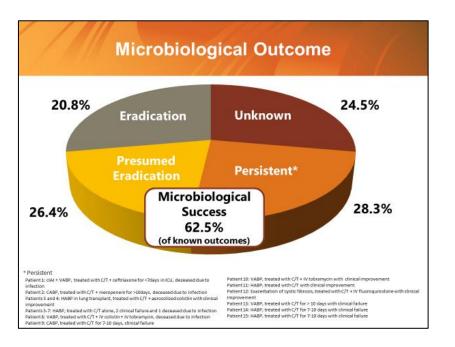
An IV ceftolozane/tazobactam usage questionnaire was developed using the input of infectious disease/medical microbiology specialists (physicians and pharmacists) across Canada. The CLEAR registry protocol/questionnaire was submitted to and received approval by the Human Ethics Committee at the University of Manitoba (Winnipeg, Canada; April 2019).

Using the web-based research data management program, REDCap<sup>TM</sup> (Research Electronic Data Capture), clinicians (physicians and clinical pharmacists) responded directly to the usage questionnaire online starting June 2019. The REDCap™ online link survey (https://is.gd/CLEAR\_ceftolozanetazobactam) was distributed via email to >270 CLEAR participants (members of the Association of Medical Microbiology and Infectious Diseases Canada [AMMI] and Canadian Society of Hospital Pharmacists [CSHP]). Clinicians were sent an email every 2 months encouraging their participation in CLEAR. A series of dropdown menus and short answer questions allowed for rapid (~3 minutes) completion of the survey. Clinicians were encouraged to voluntarily complete usage questionnaires for as many patients as possible. The CLEAR ceftolozane/tazobactam questionnaires received by March 15, 2021 were tabulated and results presented are based on 54 patient treatment surveys.



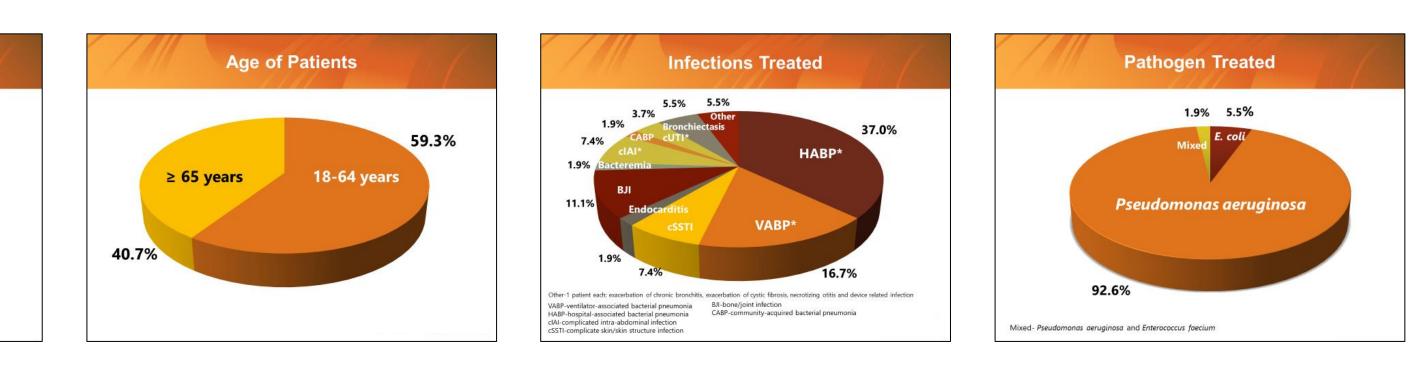


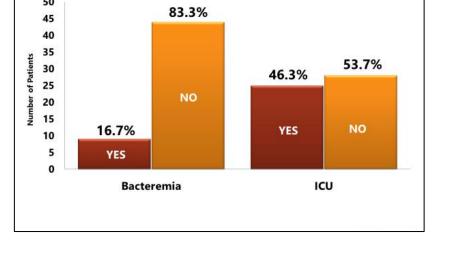




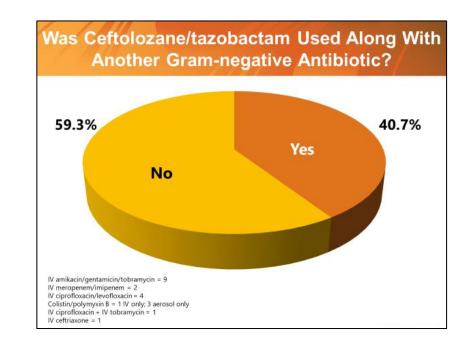
#### Results

Below are the cumulative tabulated results of the questions asked in the CLEAR ceftolozane/tazobactam usage survey questionnaires as of March 15, 2021. The following tables are based on a total of 54 patient treatment surveys.

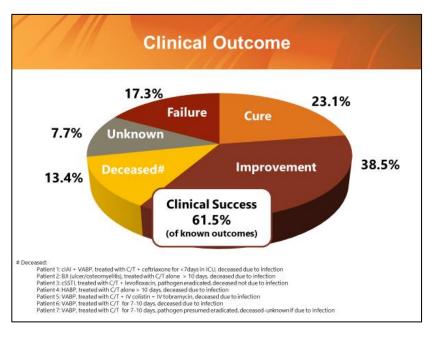


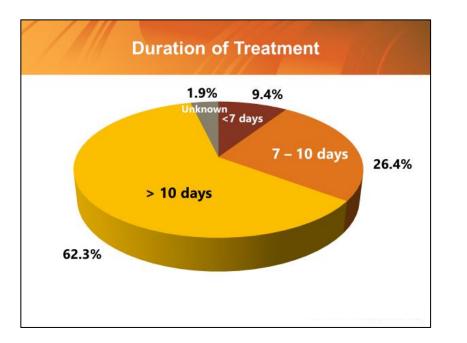


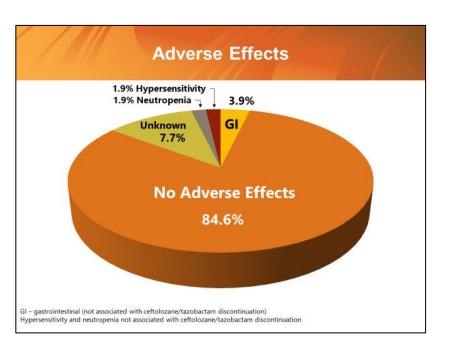
Was Patient Bacteremic or in the ICU?



# (%) of Patients	Ceftolozane/tazobactam Dose
16 (29.6%)	2 g (1 g) Q8H
17 (31.5%)	1 g (0.5 g) Q8H
4 (7.4%)	150 mg (75mg) Q8H
1 (1.9%)	1 g (0.5 g) Q12H
7 (13.0%)	750mg (375mg) Q8H
4 (7.4%)	450mg (250mg) Q8H
4 (7.4%)	3 g (1.5 g) Q8H
1 (1.9%)	375mg (188mg) Q8H









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## Conclusions

- 1. Ceftolozane/tazobactam was used to treat a variety of hospital-acquired including bacterial infections pneumonia, ventilator-associated bacterial pneumonia, intra-abdominal infection, complicated complicated skin/skin structure infection, bone/joint infection and community-acquired bacterial pneumonia
- Ceftolozane/tazobactam was almost exclusively used for 2. the treatment of infections caused by Pseudomonas aeruginosa
- Ceftolozane/tazobactam was primarily used due to 3. resistance to existing antibiotics
- Approximately 50% of patients treated with ceftolozane/ tazobactam were in the ICU
- Ceftolozane/tazobactam was mostly used after 5. antimicrobial susceptibility testing using disk diffusion or Etest
- Ceftolozane/tazobactam was frequently combined with a 6. anti-pseudomonal agent including second aminoglycosides, fluoroquinolones and colistin
- 7. The most common IV dosage administered was 1 g (0.5g) q8h and 2 g (1g) q8h administered using a short infusion
- Ceftolozane/tazobactam was frequently used for durations >10 days
- 9. Ceftolozane/tazobactam treatment was associated with high rates of microbiological and clinical success, though bacterial persistence did occur and was at times associated with clinical failure and resulting death due to the infection
- 10. Ceftolozane/tazobactam was associated with an excellent safety profile

### Acknowledgements

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#### **Survey Access**

CLEAR – ceftolozane/tazobactam link

https://is.gd/CLEAR\_ceftolozanetazobactam