

PROJECT SNAPSHOT

10C: A Cost Analysis of the Effectiveness of Rapid Identification and Susceptibility Testing of Positive Blood Cultures

Pillar: Prevention of Transmission

Theme: Policy, Economics and Sustainability

Keywords: Antimicrobial Resistance; Bacteremia; Outcome; Costs; Rapid Diagnosis



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AIM

The focus of this project is to determine the costs and outcomes in the management of bacterial bloodstream infections along with the effect of rapid diagnostic tests on these factors.

WHY IS THIS IMPORTANT?

Bacteremia is common in hospitalized patients with an increasing incidence of disease caused by drug-resistant pathogens resulting in high costs of hospitalization and poor outcomes. Rapid diagnostic tests have been utilized to provide faster identification and susceptibility of pathogens leading to a reduction in time to appropriate therapy.

OUTCOME

An understanding as to whether or not rapid diagnostic tests will lead to a reduction in time to appropriate therapy, reduced costs, and improved patient outcomes.

RESEARCH QUESTIONS

- 1 What are the attributable costs of bacteremia in hospitalized patients?
- 2 What is the cost effectiveness and outcomes of novel rapid diagnostic tests in identifying bacteremia and determining susceptibilities?
- 3 What are the clinical outcomes of bloodstream infections?

OUR APPROACH

- 1 Investigators in the Calgary Zone will use laboratory and clinical databases to compare those without bacteremia to those with bacteremia between 2011 and 2018. The costs associated with each episode of bacteremia will be analyzed to determine the incremental costs associated with bacteremia.
- 2 Cost effectiveness analysis models will be used to assess the impact of novel rapid diagnostic tests with standard microbiological testing methods implementing data garnered from the first research question.
- 3 Clinical outcomes such as mortality, length of hospitalization, antimicrobial usage, and quality-adjusted life years will be evaluated between the two groups.

ALIGNMENT WITH THE AMR - ONE HEALTH CONSORTIUM

LEVERAGED SOURCES OF SUPPORT

Alberta Precision Laboratories (Infrastructure & Database) • University of Calgary Department of Medicine (Infrastructure)

KNOWLEDGE & TECHNOLOGY EXCHANGE AND EXPLOITATION

- Evaluation of which rapid diagnostic tests to fund.
- Targeted antimicrobial therapy for those with drug-resistant bacteremia.
- Informing and improving patient care and outcome.

TRAINING OF HIGHLY QUALIFIED PERSONNEL

- 1 Medical Microbiologist
- 3 Early Investigator Research Scientists, including expertise in health economics and economic analyses
- 1 Infectious Diseases Fellow
- 1 Clinical PharmD
- 1 Biostatistician/Analyst

AFFILIATIONS:

