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Making the Business Case for a Fast Diagnostic Platform for BSIs with a Clinical Implementation Support Team

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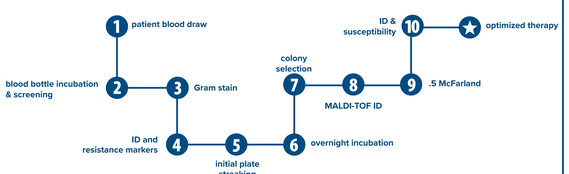
INTRODUCTION

- The Canadian government is tackling antibiotic use and resistance through infection prevention, antimicrobial stewardship, and innovation initiatives.
- There is an urgent need for diagnostic technologies to provide fast antibiotic sensitivity testing (AST) for optimization of antibiotic therapy.[1-3]
- A novel diagnostic platform for bloodstream infections (BSI) provides both identification (ID) and AST in ~7 hours, which is ~40hrs faster than standard lab procedures[2-8]
- A fast ID/AST system for blood cultures represents a significant paradigm shift in workflow options
- To support this new laboratory and clinical workflow, as well as provide an important infection prevention tool, a Clinical Implementation Support (CIS) team was formed
- The purpose of the CIS team is to aid the effective implementation of fast diagnostics. The CIS team is a valuable resource as Canada moves towards value-based patient-centered outcomes.

Blood Culture Standard of Care ID & AST Workflow

~48-96hrs from positive blood culture



THE PROJECT

- The **CIS team consists of various experts** including infection preventionists, business analyst, program manager, clinical review specialist, process analyst and pharmacists
- Using a health economic calculator and process workflows the **team prepares a business presentation** based on publicly reported value-based health outcome data and current laboratory standard of care (SOC) procedures.
- A **prospective evaluation of clinical outcomes is conducted** by CIS team after laboratory adoption of fast ID/AST. This includes length of stay (LOS), mortality rates and antibiotic usage to clinically justify the system.

CIS SERVICES AVAILABLE

Program management
Define processes and reporting; coordinate interdependencies, manage stakeholder communications and ensure resources and deliverables are aligned across projects and program

Clinical Case Review
If applicable, review a series of patient case studies with the current lab standard of care overlaid with the opportunity for intervention and associated impact with accelerated ID and AST results

Evaluation and Performance Data
Provide laboratory verification data review to customers

ID/Pharm Consults
Provide expert consultancy on antibiotic best practices and national guidelines

Process Analysis
Analyze and map operational and result communication workflow processes that impact antibiotic utilization

Business Justification
Provide financial analysis, clinical evidence, performance data, and publication support, in various forms of deliverables.

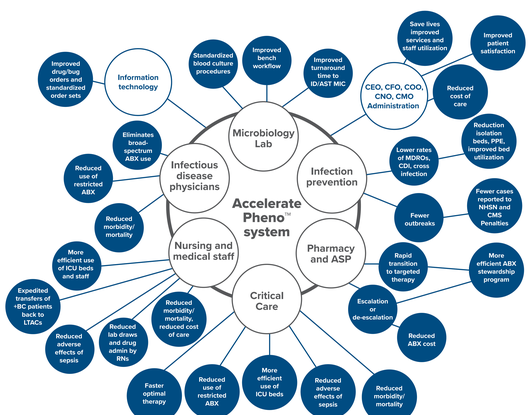
Clinical Education
Guide clinical practice in the adoption of fast phenotypic diagnostic technologies and associated work and information flows

CIS SERVICE ENGAGEMENTS (FROM JULY 2018 TO MARCH 2019)

- 109 accounts have requested CIS Service engagement
  - Of these 109 accounts, 193 engagements have been requested
    - ~50% of accounts have requested 2 CIS Services
    - ~20% of accounts have requested >3 CIS Services
- Of the 67 accounts that have signed contracts to install the fast ID/AST blood culture system (from Jul 2018 to March 2019), **58.2% (39) have utilized CIS Services**

Fast Workflow for Antimicrobial Stewardship, Sepsis Care and Isolation of BSI with MDRO

Our Potential Impact on the Continuum of Care



CONCLUSION

The benefit of a CIS team to clinicians are the examination of:

1. reduced use of empiric antibiotics
2. earlier directed optimal therapy
3. early ID of multi-drug resistant organisms (MDROs)
4. reduced LOS
5. lower mortality rates

A CIS team can substantially aid the effective implementation of fast diagnostics for value-based healthcare outcomes for bloodstream infections.[3,9,10]

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