



Project Name

Improve efficiency of detection of Carbapenemases in gram negative bacterial isolates of Enterobacteriaceae.

Site	Department
Jeddah	Department of Pathology and Laboratory Medicine

Project Status	Project Start Date	Project End Date
Completed	06-30-2018	11-14-2018

Problem: Why the project was needed?

Presently, in microbiology section Carbapenemase detection in bacterial isolates from the family of Enterobacteriaceae are performed using phenotypic methods based on antibiotic susceptibility pattern of the organism and Modified Hodge test (MHT). The test results are available after 24-48 hours

The accuracy of phenotypic methods based on antibiotic susceptibility pattern and Modified Hodge Test (MHT) is moderate and the test results are available after 24-48 hours. The limitation of the test is poor sensitivity for NDM type Carbapenemase producers and poor specificity when Amp-C beta lactamases are present. The current phenotypic methods in use are laborious and can require 24-48 hours to generate a final result causing a delay in the reporting of the antibiotic susceptibility results and patient management.

Aims: What will the project achieve?

Improve the accuracy and test Turnaround time (TAT) for detection of the carbapenemases in Enterobacteriaceae to be available within 2 hrs.

Benefits/Impact: What is the improvement outcome? (check all that apply)

- Contained or reduced costs
- Improved productivity
- Improved work process
- Improved cycle time
- Increased customer satisfaction
- Other (please explain)
Click or tap here to enter text.

Quality Domain: Which of the domains of healthcare quality does this project support?

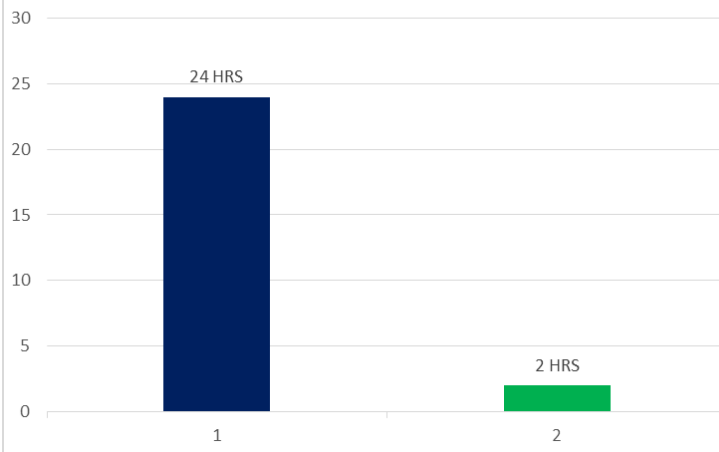
Timely

Interventions: Overview of key steps/work completed

- As the current method is laborious and can generate results after minimum 24 hours, an alternate method of testing was evaluated.
- Genexpert Carba-R assay test which is a qualitative diagnostic test designed for rapid detection and differentiation of the bla KPC, bla VIM, bla NDM, bla OXA-48 & bla IMP-1 gene sequences associated with carbapenem no susceptibility in gram negative bacteria was validated for direct testing with bacterial isolates.
- New algorithm for detection of Carbapenemases in suspected clinical isolates of Enterobacteriaceae was developed and new IPP "Rapid Carbapenemase screening-Carba-R by Genexpert" was written and implemented.
- 4. Modified Hodge test was replaced with Genexpert Carba -R assay.

Results: Insert relevant graphs and charts to illustrate improvement pre and post project (insert relevant graphs, data, charts, etc.)

REDUCTION OF TESTING TIME IN HOURS



Project Lead

Name

(person accountable for project)

Anupama Vattappillil

Team Members

Names

(persons involved in project)

Hadeel Ghurab (QM Facilitator)

Dr Mohammed Qutub

Sarfinaz Hanbazaza