In response to this and since the launch of several new products onto the market in 2017, Microbiology at NWLP have conducted an extensive evaluation of products currently available, testing time to result, accuracy, reproducibility, technical skill level required, cost and ease of workflow. A new testing pathway is currently being introduced with a live test of patient samples due to start imminently.

The new test being introduced is the Immunochromogenic lateral flow RESIST O.K.N test (Bioconnections), which can be performed on all enterobacteriaceae and will detect KPC, NDM and OXA48 direct from the screening agar – i.e. 90% of the confirmed CPEs detected to date.. This should reduce the time to CPE detection to 20-24 hours for isolates with these mechanisms. Screens which are positive for growth on the screening agar but OKN negative will continue to have further testing to detect VIM, IMP and other less common mechanisms of resistance. The expected TAT for these isolates will remain 72 to 96 hours, but should be fewer in number.

Update to the detection of carbapenemase-producing Enterobacteriaceae (CPE) in Microbiology

The current procedure for carbapenemase-producing Enterobacteriaceae (CPE) screening was introduced in July 2015. The screening protocol was designed for high turnover, with best available tests at that time. The method chosen was: Culture onto selective agar, colony identification, sensitivities, followed by a decision to do PCR or not based on initial sensitivities. The expected turnaround time (TAT) for a negative result was 18-24 hours, with a positive result requiring 72-96 hours.

Problems which have evolved with the current process include the following:

1/ Some organisms can be difficult to detect on the basis of sensitivities alone – resulting in some false negative reports, later identified as CPE. Standardisation of the decision making process regarding need for PCR is also difficult.

2/ Kiestra system of automated laboratory workflow, introduced in 2016, is effective for reporting the negatives, however there have been times where the TAT has increased due to the complexity of the procedure when decisions on additional testing are required.

3/ Relative expense of the PCR for CPE detection on positive isolates has meant that it is not cost effective to perform on all isolates and would increase the sample processing cost considerably if performed without sensitivities being first done to guide use.

4/ Large number of isolates that are carbapenem resistant and PCR negative are being sent to the reference laboratory for confirmation.

Demand for screening has exceeded the initial workload estimates and feedback from users found that the current screening method had an unacceptable TAT, with an impact on patient isolation and potential for spread of CPE between patients due to delay in recognition of status.

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The new flowchart for testing and details of the products evaluated are available on request from the microbiology laboratory manager.