

# Improved diagnostics

Designed for the patient and optimised for the lab, **GenMark Diagnostics'** new ePlex system is the first truly integrated sample-to-answer solution for clinical diagnostics. Dr Julie A Ribes and Dr Vaneet Arora, directors of clinical microbiology at University of Kentucky HealthCare, an associated hospital system in Lexington, have recently tested the system, and they share their conclusions with us.

## What benefits have you found from using ePlex blood culture identification panels over traditional diagnostic methods?

**Dr Julie A Ribes:** The ePlex panels have superior inclusivity compared with the panel we are currently phasing out. The Gram-negative (GN) coverage is particularly outstanding. During our head-to-head comparison of ePlex to our current blood culture identification (BCID) system, there was more than a 30% increase in pathogen detection. The ePlex detected 43 true positive results compared to only 29 by our other method. For the Gram-positive (GP) panel, ePlex detected an additional 13 true positive results above our current method, for an increase of 9% in rapid detection.

UK Healthcare caters to a large intravenous drug-using population, and we have a relatively large number of patients with unusual organisms in their blood as a result. During our evaluation, we had three *Serratia* spp, three *Stenotrophomonas maltophilia*, one *Morganella morganii*, and even a *Fusobacterium necrophorum* detected by the ePlex and culture, but not by the rapid microarray method. Historically, our pharmacy doctors (PharmDs) have requested more rapid identification for *Serratia* spp and have asked us to perform additional molecular testing if a Gram-negative organism was seen on Gram stain, but not identified by our primary BCID. The ePlex will take away this redundant testing and delay in turn-around-time for detection.

The ePlex pan-Gram-negative and pan-Gram-positive analyses are also helpful. We had several instances where these were positive, but the Gram-stain morphology had not been recognised initially, particularly with mixed cultures.



GenMark's new ePlex system offers notably greater Gram-negative and positive detection than previous panels.

## Can you describe the ePlex user experience? How does it help to prevent errors and ensure patient safety?

**Dr Vaneet Arora:** The ePlex system is true walk-away technology with an intuitive process. First, the positive blood culture bottle is processed under the biological safety cabinet to remove an aliquot to a labelled tube, prepare the Gram stain and plate the cultures. The appropriate ePlex panel is then selected based on the Gram-stain characteristics of the organisms seen. Patient and specimen identification are barcode driven, so the test results are linked to the specific patient being tested. The cartridge is scanned for definitive patient and panel identification, and is then inserted into the instrument, and the tech walks away as testing proceeds. The instrument's interface allows for the test results to be uploaded directly for reporting into the electronic medical record.

Our current instrument has several phases of testing, and resulting is all manual. This has been a significant cause of error over time and is another major reason why we are replacing the current platform.

## How does ePlex compare with or fit in with your organisation's standard of care methodologies? Has it impacted how you think about standard of care for blood sampling and diagnosis?

**VA:** Our PharmDs are clamouring for a more comprehensive panel for reporting blood culture results. Our current panel was brought in with the understanding that all molecular blood culture results would be reported to a PharmD 24/7 so that antimicrobial administration could be optimised to better support patient care. The ePlex system with its more extensive coverage will allow for a more robust intervention, especially for GNs like *Serratia* and *Stenotrophomonas*, which we see so commonly in our patients. The Fungal Panel – which we are still evaluating – also promises to be an excellent addition to our current testing platform, which is quite limited in comparison.

## How has ePlex improved or aided your antimicrobial stewardship efforts?

**VA:** UK HealthCare is already at the cutting edge of antimicrobial stewardship. Having the ePlex panels will better allow our PharmDs and the clinical care teams to manage patients, and to either escalate or de-escalate antimicrobials more efficiently. This is the ultimate goal in switching platforms.

In our evaluation, the ePlex results would have decreased turnaround times by 24 hours for antimicrobial optimisation in at least eight patients using the Gram-negative panel. We are anxious to make this switch to ePlex for rapid BCID testing. ●

## For further information

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