

## The Princess Alexandra Hospitals NHS Trust Receives Global Award for Healthcare Excellence with Strategic Implementation of Procalcitonin for the Early Recognition and Management of Sepsis in the Emergency Department



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Pictured from left to right: Umanda DeThabrew, Nick Kroll, Georgia Lucas, Andrea Annoni, Angela Bartolf

Sepsis presents an ongoing challenge to health systems worldwide, with a mortality rate ranging from 20-50%. Early identification is pivotal for improving outcomes and reducing mortality. However, early identification is a challenge as patients often present with non-specific symptoms that can be difficult to distinguish from other diseases. Once sepsis is diagnosed, patients often require intense care in for substantial periods of time. Although more than half of all patients who are ultimately diagnosed with sepsis cases enter the hospital through the emergency department (ED), only about 25% are recognized and diagnosed there. Consequently, significant opportunities exist to enhance treatment and outcomes through improved early identification, particularly in the ED.

In order to improve sepsis recognition and diagnosis, an

integrated clinical care team from The Princess Alexandra Hospitals NHS trust, UK implemented procalcitonin (PCT) into clinical care. The outcomes and success of this initiative have recently been published and highlight the importance of education, strategic testing and quality improvement methodologies for successful integration of this powerful marker into care (1).

Using a PCT  $\geq 0.2$  ng/mL in the emergency department to identify patients at higher risk of mortality and longer length of stay (LOS), enables improved and accelerated treatment, comprehensive care planning by both clinical staff and family members and improves resource utilization. In patients with a first PCT  $\geq 0.2$  ng/mL, mortality rates were 18.2% and the length of stay was 9.8 days, versus a mortality rate of 7.7% and LOS of 7.1 days for patients with PCT  $\leq 0.2$  ng/mL.

PCT-guided diagnosis and treatment also helps ensures expedited triage. Ensuring that at least 75% of patients are admitted or discharged within 4 hours of attending the emergency department is a key performance indicator for many hospitals, including the Princess Alexandra Hospitals NHS Trust. Following implementation of PCT, expedited triage based on four-hour performance in the ED improved from 69% (April 2019) to 78% (Oct 2019 to Mar 2020).

The importance and utility of PCT-guide diagnosis is magnified during the COVID-19 pandemic. Georgia Lucas, MD, General Practitioner Vocational Trainee notes that *“PCT helped differentiate COVID-19 patients from septic patients. I was encouraged to talk about PCT and sepsis in handover on weekends because everyone that came in with a fever was suddenly COVID and we risked missing patients with sepsis”*.

It is evident that implementation of this novel biomarker into clinical practice can improve outcomes, expedite triage, and enhance resource utilization, but only when coupled with strategic integration across clinical departments, novel thinking, and a passion for improving care. For their extraordinary outcomes this care team has been awarded the prestigious 2020 UNIVANTS of Healthcare Excellence Award Designation of Achievement (2). Congratulations to Andrea Annoni, MD, Accident and Emergency, Nick Kroll, Data Analytics/Information Management, Helen Pardoe, MD, Consultant Colorectal Surgeon, Quality

Improvement, Marie Parsons, Consultant, Department Chemical Pathology. For more details on their achievements or to learn more about the UNIVANTS of Healthcare Excellence award program, visit [www.UnivantsHCE.com](http://www.UnivantsHCE.com).

### THREE KEY TAKEAWAYS

1. Sepsis and septic shock are common presentations to the emergency department and are substantial causes of morbidity and mortality.
2. PCT-guided diagnosis and treatment can substantially enhance decision-making, improve treatment and positively affect patient outcomes.
3. Implementation of Procalcitonin (PCT) into clinical care requires cross-departmental involvement, education and buy-in to improve patient care and outcomes.

### REFERENCES

1. Pardoe, et al. Procalcitonin (PCT) level in the emergency department identifies a high-risk cohort for all patients treated for possible sepsis. eJIFCC 2021;32:1:020-026.
2. Strain C and Ravalico TH. Laboratory medicine and healthcare excellence; Till death do us part. eJIFCC 2021;32:1:007-019.