

# Routine procalcitonin testing helps clinicians identify and treat sepsis early

SIGNATURE HEALTHCARE BROCKTON HOSPITAL

Signature Healthcare is an integrated health care system comprised of the award-winning not-for-profit Signature Healthcare Brockton Hospital; Signature Medical Group (SMG), a multi-specialty physician group of more than 150 physicians practicing in 18 ambulatory locations; and the Brockton Hospital School of Nursing.

## Challenge

Clinicians face many challenges in their efforts to accurately and efficiently diagnose patients with sepsis. Symptoms of sepsis are often vague and there is no objective standard diagnostic test for sepsis, so clinicians must look at a combination of abnormal vital signs, laboratory results and patient-reported information to determine whether there is risk of sepsis.

## Action

To help give their clinical staff more information, Signature Health Brockton Hospital made the decision in 2016 to add procalcitonin (“PCT”) testing to their standard work-up for patients with suspected sepsis.

According to the team at Brockton Hospital, using PCT for every patient with suspected sepsis gives the clinical team vital information that helps to guide the next steps in treatment. If the result is positive, that almost always points in the direction of a patient with a bacterial infection, so a clinical team can be confident in starting antibiotics. If the result is negative, the patient does not have a bacterial infection, so the team can pivot to treating a viral infection or another underlying cause of the symptoms. In addition, repeat PCT testing is helpful in

reassessing a patient’s response to antimicrobial therapy and may lead to more rapid de-escalation of antibiotics.

One potential downside of routine PCT testing is the expense and resource investment associated with the test. The test is not inexpensive and the hospital had to invest resources to be able to make it routinely available. A patient who is diagnosed with sepsis may need several PCT tests over the course of their hospital stay in order to accurately gauge the response to antimicrobial therapy. But the team at Signature Health Brockton has become convinced that the test has more than paid for itself by helping to reduce unnecessary use of antibiotics and allow more rapid de-escalation of antibiotic therapy. Add to that the emerging evidence that procalcitonin-guided antibiotic therapy can also reduce mortality and hospital length-of-stay, and the benefits far out-weigh the costs.

## What is procalcitonin?

Procalcitonin (or “PCT”) is a substance produced in the body in response to certain conditions, including bacterial infections or in cases of tissue damage. This blood test can be used as a marker for sepsis and is effective because the body releases it early and rapidly in response to the bacterial infections that lead to sepsis.

<sup>1</sup>Wirz, et al. Effect of procalcitonin-guided antibiotic treatment on clinical outcomes in intensive care unit patients with infection and sepsis patients: a patient-level meta-analysis of randomized trials. *Critical Care* (2018) 22:191. <sup>2</sup>Id.