

Pancreatic Stone Protein Testing Reduces Expenditure in Sepsis



Sepsis is a life-threatening organ dysfunction and a cause of significant morbidity and mortality. In addition, the high number of sepsis cases is a significant economic burden for healthcare systems. Statistics show that sepsis was the most expensive condition treated in the U.S. in 2013, costing nearly \$24 billion. An analysis of Medicare claims in 2020 found a 40% increase in sepsis-related hospital admissions between 2012 and 2018. Associated costs of these admissions increased from \$17.8 billion to \$22.4 billion.

The early recognition and treatment of sepsis are critical for improving patient outcomes and saving healthcare costs. However, sepsis is difficult to diagnose because it has non-specific symptoms.

Blood cultures and lactate serum levels are commonly used diagnostic tools for the identification of sepsis. However, they have several drawbacks. Blood cultures have low sensitivity and are positive in 30–40% of septic patients. Also, analysis of blood cultures can take 24 hours or more, and recent antibiotic use may produce a false negative. Elevated serum lactate levels are a sign of tissue hypoperfusion and are associated with in-hospital sepsis mortality. However, elevated lactate levels are non-specific to sepsis.



Using biomarkers such as pancreatic stone protein (PSP) offers rapid results with better sensitivity and specificity compared to standard laboratory tests.

In this study, the researchers developed a decision tree model and compared the rapid PSP test to the standard of care in the emergency department and ICU for diagnosing patients with suspected sepsis. The model's key parameters included length of hospital and ICU stay, readmission due to infection, cost of sepsis testing, length of antibiotic treatment, antibiotic resistance, and *clostridium difficile* infections.

Findings show that the rapid PSP test reduced costs by nearly \$1688 per patient in the emergency department and \$3315 per patient in the ICU compared to the standard of care. These cost savings were driven by the specificity of PSP in the emergency department and its sensitivity in the ICU.

These findings show that PSP testing offers greater cost savings than the standard of care in diagnosing sepsis. These findings are important because sepsis is a commonly encountered condition in the ICU. The results also support the potential of specific markers of sepsis to improve patient outcomes and reduce healthcare expenditures.

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Published on : Tue, 2 Aug 2022