**Procalcitonin over time**

**MORE CONFIDENT DECISIONS**

**Vidas® BRAHMS PCT®**
- Early detection & risk
- Rapid results in 20 minutes
- Assess risk over time

**PROCALCITONIN (PCT)**
A better biomarker for the clear indications of
- Systemic bacterial infections
- Sepsis
- Septic shock

**BIOMÉRIEU**
**PIONEERING DIAGNOSTICS**
FOR RAPID RESULTS

For patients with sepsis, the first hour is critical — the first 24 hours can be decisive. Procalcitonin provides critical biomarker information that can help increase the accuracy of early sepsis diagnosis.

THE FIRST HOUR IS CRITICAL

A NOVEL BIOMARKER

PCT increase reflects the continuous development from a healthy condition to the most severe disease states. It rises in response to increasing sepsis severity.¹
A TOOL THAT AIDS IN ASSESSING SEPSIS RISK & SEVERITY

<table>
<thead>
<tr>
<th>ng/mL</th>
<th>PCT concentrations &amp; sepsis risk</th>
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<tbody>
<tr>
<td>&lt; 0.5</td>
<td>Low risk for progression to severe sepsis and/or septic shock</td>
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<tr>
<td>0.5 – 2.0</td>
<td>Sepsis should be considered</td>
</tr>
<tr>
<td>&gt; 2.0</td>
<td>High risk for progression to severe sepsis and/or septic shock</td>
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Early detection and appropriate clinical intervention is pivotal for improving outcomes in patients threatened by sepsis.

VIDAS® B•R•A•H•M•S PCT™ delivers results in 20 minutes — results that can provide specific information that adds to physician acumen, and enables physicians to make more appropriate triage decisions and aggressively treat patients with elevated risk.

These VIDAS® B•R•A•H•M•S PCT™ reference ranges provide a guide for initial patient assessment, and can help support conclusions about severity and prior source control. Initial results also serve as a reference against which later PCT values can be analyzed.

PCT levels must always be interpreted in the context of other laboratory findings and clinical assessments.

THE FIRST 24 HOURS CAN BE DECISIVE

INCREASED DIAGNOSTIC & PROGNOSTIC VALUE\(^1,2,3\)

- Among several laboratory parameters, PCT has been shown to be the most useful\(^2,3,4,5\).
- PCT showed the best performance for differentiating patients with sepsis from those with a systemic inflammatory response not related to an infectious cause\(^2\).
- PCT is the only laboratory parameter shown to have made a significant contribution to the clinical diagnosis of sepsis\(^2\).
- Compared to serum lactate, PCT has shown to be far more predictive for sepsis\(^3\).
FOR ASSESSING RISK OVER TIME

In the ICU, in the Emergency Department, in patient wards — VIDAS® B•R•A•H•M•S PCT™ (Procalcitonin) can aid in sepsis risk assessment and deliver key data related to bacterial infection severity, at initial presentation and over the course of treatment. In managing critically ill patients, serial measurements over multiple days can support assessment of that patient’s response to therapy. As the infection is controlled, PCT will decline daily.⁶

IT’S DIFFERENT FROM OTHER BIOMARKERS

- PCT is distinguished from other markers by its early and highly specific increase in response to severe systemic bacterial infections and sepsis²,³
- Increased PCT levels can be observed within just 3–6 hours after an infectious challenge⁷
- With a 24-hour half-life, PCT decline is consistent with an improving clinical condition²,⁷
**ASSESS RISK OVER TIME**

The Procalcitonin Monitoring Sepsis Study (MOSES)\(^8\)

- 858 adult patients with sepsis recruited across 13 investigational sites in the United States
- The mortality rate was 2-fold higher when PCT did not drop by more than 80 percent from baseline to Day 4
- The initial PCT level (\(\leq 2.0 \text{ ng/mL}\) or \(> 2.0 \text{ ng/mL}\)) provided important additional information about the mortality risk when evaluating the patient’s clinical course with PCT measurements on subsequent days

The change of PCT over time aids in assessing the cumulative 28-day risk of all-cause mortality for patients diagnosed with severe sepsis or septic shock.

**UNIQUE KINETICS OF PCT ARE STRONG INDICATORS OF MORTALITY RISK OVER TIME\(^8\)**

![Graph showing PCT over time](image)

- Assessing PCT kinetics over time provides valuable information regarding patient disposition, response to treatment and likelihood of survival
ADDRESSING A CRITICAL NEED

Sepsis threatens over 1.6 million patients in U.S. hospitals each year — approximately 254,000 of whom do not survive. The need for more effective strategies to help manage sepsis is urgent. As a marker of systemic bacterial infection and sepsis, Procalcitonin (PCT) can play a critical role in addressing this clinical challenge.

THE CHALLENGE OF SEPSIS

SEPSIS IS COMMON
• 6th most common principal diagnosis
• Hospital stays for sepsis more than doubled between 2000–2008

SEPSIS IS DEADLY
• Overall mortality rate: 14.7% (2009)
• In-hospital mortality rate: 16% (2009)
• 8x higher than overall inpatient rate

1 out of every 23 patients in the hospital has sepsis
Around every 3rd heartbeat, someone dies of sepsis
Clinicians should always interpret PCT values in the clinical context of the patient.

Increase in PCT reflects the continuous development from a healthy condition to the most severe consequences of bacterial infection (sepsis and septic shock).

Therefore, optimal cut-off values for PCT are variable and dependent on factors such as the clinical setting, the site and extent of the infection, and the presence of co-morbidities.

Learn more about VIDAS® B•R•A•H•M•S PCT™ — a novel, sensitive, specific STAT biomarker that can produce results in just 20 minutes. And find out how you can put it to the test.

Visit sepsisknowfromday1.com

Visit biomerieux-usa.com

THE BIOMÉRIEUX SOLUTION FOR SEPSIS CARE MANAGEMENT

every second counts
Limitations

Increased PCT levels may not always be related to systemic bacterial infection.

Several situations have been described where PCT can be elevated by non-bacterial causes. These include, but are not limited to:

- neonates < 48 hours of life (physiological elevation)
- the first days after a major trauma, major surgical intervention, severe burns, treatment with OKT3 antibodies and other drugs stimulating the release of pro-inflammatory cytokines
- patients with invasive fungal infections, acute attacks of plasmodium falciparum malaria
- patients with prolonged or severe cardiogenic shock, prolonged severe organ perfusion anomalies, small cell lung cancer, medullary C-cell carcinoma of the thyroid.

Low PCT levels do not automatically exclude the presence of bacterial infection.

Such low levels may be obtained, during the early course of infections, in localized infections and in subacute endocarditis. Therefore, follow-up and re-evaluation of PCT in clinical suspicion of infection is pivotal. The PCT measuring technique should be chosen according to clinical use.

Additional literature

- American College of Chest Physicians/Society of Critical Care Medicine (1992), Definitions for sepsis and organ failure and guidelines for the use of innovative therapies in sepsis.
- SCHULTE E et al., Procalcitonin decrease over 72 hours in US critical care units predicts fatal outcome in sepsis patients. Critical Care 2013; 17: R815.