

Procalcitonin Frequently Asked Questions

1. What is procalcitonin (PCT)?

Procalcitonin is a biomarker produced by the body that is elevated in times of systemic inflammation, particularly when due to bacterial infection. In clinical practice, it can be used to help determine the likelihood of the presence of bacterial infection and guide cessation of antibiotic therapy.

2. When can PCT be used in concordance with Stanford Health Care guidelines?

- Determination of antibiotic treatment duration in respiratory tract infections
- Determination of antibiotic treatment duration in undifferentiated sepsis
- Differentiation of bacterial versus viral respiratory tract infection

3. How can PCT be used?

See algorithm below. The data most strongly support procalcitonin use to assist clinicians in determining the duration of antibiotics needed to treat respiratory tract infections and undifferentiated sepsis. ¹⁻⁶ PCT should not be used in isolation for decisions regarding initiation of empiric antibiotic therapy. PCT should only be interpreted within the clinical context to guide treatment strategies.

4. When can PCT be falsely elevated (false positive)?

Severe trauma
Surgery
Cardiac shock
Burns
Malaria
Systemic vasculitis (Granulomatosis with Polyangiitis, Kawasaki disease, Adult Onset Still's Disease and Goodpasture's syndrome)⁷
End-Stage Renal Disease
Post ATG, alemtuzumab

5. When is PCT falsely decreased (false negative)?

Localized infections (osteomyelitis, abscess, subacute endocarditis)
Procalcitonin checked too early

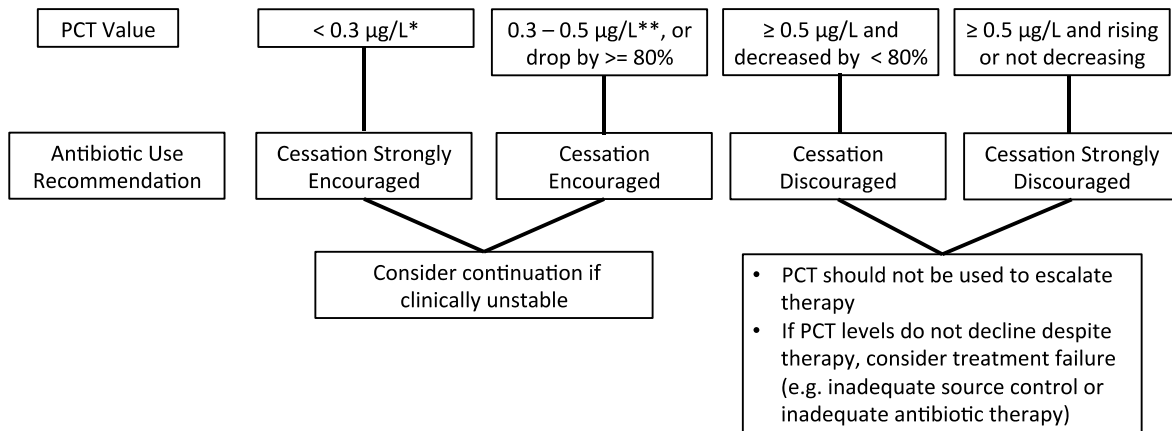
6. PCT misconceptions

Procalcitonin should be used with caution in immunocompromised patients.¹¹ It can be used in elderly patients (> 65 years old) using the same algorithm as outlined for the standard medicine patient.⁸⁻¹⁰

7. What is the PCT cut off for End-Stage Renal Disease?

PCT is known to be higher in ESRD due to decreased clearance. Therefore, we recommend using a cut off of 0.5 ng/mL for patients with Stage 5 CKD (GFR < 15 ml/min), hemodialysis and peritoneal dialysis patients. However, PCT may be further elevated in the absence of bacterial infections in this population.¹²⁻¹⁵

Sepsis Follow Up PCT Antibiotic Use Algorithm



*Recommend a higher PCT cut off of 0.5 ng/mL for patients with Stage 5 CKD (GFR < 15 ml/min), hemodialysis and peritoneal dialysis patients

**Recommend a lower PCT cut off of 0.25 ng/mL for determining antibiotic duration in lower respiratory tract infections

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