Procalcitonin (PCT) algorithm for stewardship of antibiotic therapy in patients with LRTI

- **< 0.1 μg/l**
  - Bacterial etiology very unlikely
  - NO antibiotics!

- **0.1 - 0.25 μg/l**
  - Bacterial etiology unlikely
  - no antibiotics

- **>0.25 - 0.5 μg/l**
  - Bacterial etiology likely
  - Antibiotics yes

- **>0.5 μg/l**
  - Bacterial etiology very likely
  - Antibiotics YES!

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**Remeasure PCT after 6-24 hours**

- Initial antibiotics can be considered in case of:
  - Respiratory or hemodynamic instability
  - Life-threatening comorbidity
  - Need for ICU admission
  - **PCT < 0.1 μg/l**: CAP with PSI V or CURB ≥ 4, COPD with GOLD IV
  - **PCT < 0.25 μg/l**: CAP with PSI ≥ IV or CURB ≥ 3, COPD with GOLD ≥ III
  - Localised infection (abscess, empyema)
  - Compromised host defense (e.g. immunosuppression other than corticosteroids)
  - Concomitant infection in need of antibiotics

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**Consider the course of PCT**

- If antibiotics are initiated:
  - Repeated measurement of PCT on days 3, 5, 7
  - Stop antibiotics using the same cut offs above
  - If initial PCT levels are >10 μg/l, then stop when 80-90% decrease of peak PCT
  - If initial PCT remains high, consider treatment failure (e.g. resistant strain, empyema, ARDS)
  - **Outpatients**: duration of antibiotics according to the last PCT result:
    - >0.25-0.5 μg/l: 3 days
    - >0.5 - 1.0 μg/l: 5 days
    - >1.0 μg/l: days