VANDERBILT UNIVERSITY MEDICAL CENTER

Vanderbilt Adult Antimicrobial Stewardship Program

This document adds additional information on diagnostic testing for community-acquired pneumonia. Please see the AgileMD VASP CAP Guidelines for decision support in diagnosing and treating CAP.

This guidance document is meant to provide general recommendations and does not supersede clinical decision making.

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Laboratory Tests for Workup of Community Acquired Pneumonia

a. Blood cultures and sputum cultures for severe CAP (Table 1) or patients started on empiric MRSA or *P. aeruginosa* coverage.

Table 1: Severe CAP Criteria[ǂ]

Major Criteria (≥1 criterion)	Minor Criteria (≥3 criterion)
• Septic shock with use of vasopressors • Respiratory failure requiring mechanical ventilation	Respiratory rate ≥30 breaths/min Pa_{O2}/FI_{O2} ratio ≤250 Multilobar infiltrates Confusion/disorientation Uremia (BUN ≥20 mg/dL) Leukopenia (WBC <4,000 cells/µL) Thrombocytopenia (platelet count <100,000/µL) Hypothermia (temperature < 36˚C) Hypotension requiring aggressive fluid resuscitation

[ǂ]CURB-65 and Pneumonia Severity Index are common scoring systems to determine treatment location (e.g., ICU vs. floor).

b. Prioritize ordering of the COVID/Influenza/RSV test for patients who have upper respiratory tract infection symptoms or when there is clinical suspicion for viral pneumonia.
    i. Patients who are immunocompromised may have the Respiratory Pathogen Panel (RPP) ordered instead if results are likely to effect management.

c. Urine *S. pneumoniae* antigen testing is no longer available at VUMC.

b. Urine *L. pneumophila* antigen testing recommended for patients with severe CAP or with risk factors for this organism (e.g. recent travel, known outbreak, or no improvement after 24-48 hours of usual antibiotics
    i. Only detects serogroup 1 that causes ~70% of infections.
    ii. Consider adding this test on patients without empiric atypical coverage who are not clinically improving.
    iii. Sent to reference lab and takes several days to result.

c. MRSA nasal PCR may be used when empiric MRSA coverage is started (e.g. vancomycin or linezolid)
    i. Administration of vancomycin or linezolid before collecting nasal swab will NOT impact results of nasal PCR.
    ii. If test is negative, MRSA active agents should be discontinued.

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iii. If test is positive, use clinical judgement for continuation of MRSA active agents. A positive test has low positive predictive value for a MRSA infection and should not be interpreted as a definitive reason to continue MRSA coverage.
iv. Patients in the ICU routinely receive mupirocin nasal decolonization upon admission to the unit and should not have a MRSA nasal PCR ordered after decolonization has started.

d. Procalcitonin (PCT) may help to guide duration of antibiotic therapy (Appendix 1), especially to STOP antibiotics in patients with an identified viral etiology or non-infectious condition. It may also help to decrease the overall duration of therapy for bacterial pneumonia.
    i. Clinical judgement should be used when interpreting procalcitonin results.
    ii. NOT intended for deciding whether to start antimicrobial therapy.
    iii. AVOID use in patients with the following:
        1. Elevated serum creatinine due to AKI or CKD
        2. Major trauma within the previous 7 days
        3. Surgical procedures within the previous 7 days
        4. Cardiopulmonary arrest within the previous 7 days

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This document was reviewed and endorsed by the Vanderbilt Adult Antimicrobial Stewardship Program.

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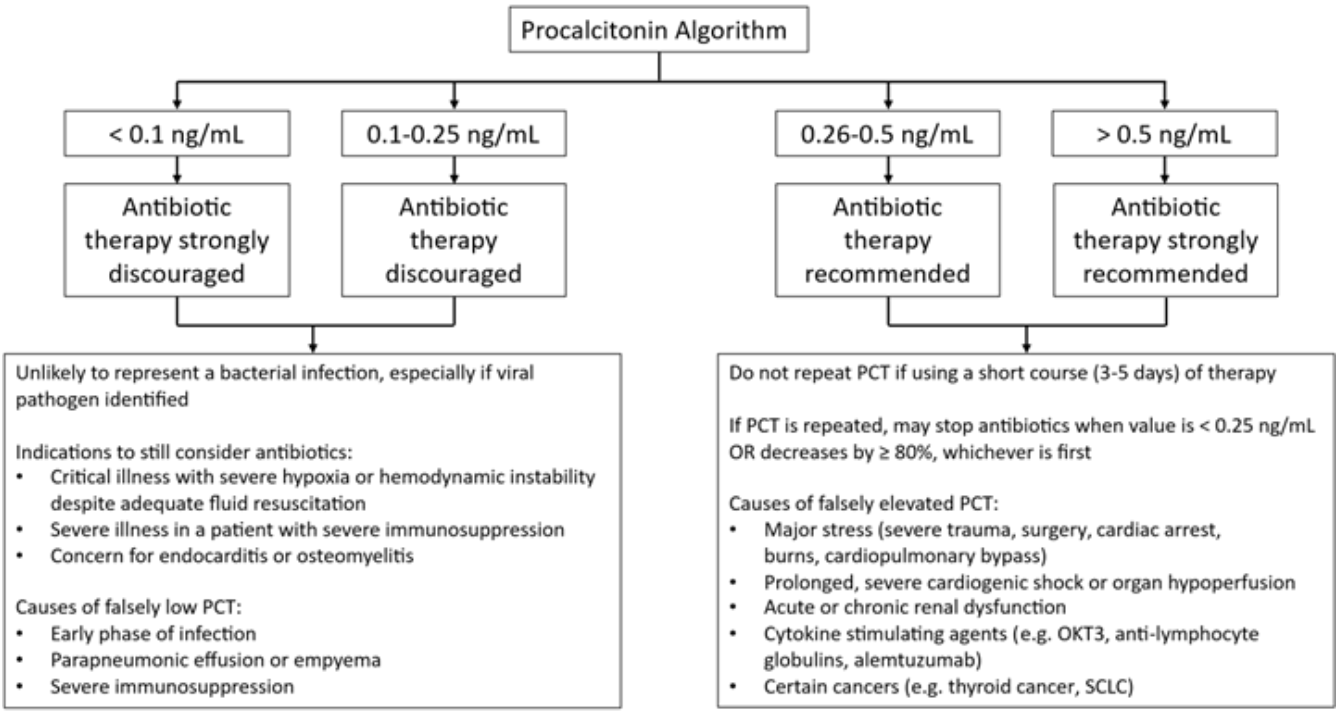
Appendix I



Modified from: Albrich WC, Dusemund F, Bucher B, et al. Effectiveness and safety of procalcitonin-guided antibiotic therapy in lower respiratory tract infections in "real life": an international, multicenter poststudy survey (ProREAL). *Arch Intern Med*. 2012 May 14;172(9):715-22. doi: 10.1001/archinternmed.2012.770.

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