ANMC Pediatric (>3mo) Inpatient Community Acquired Pneumonia (CAP) Treatment Guideline

Initial Testing/Imaging

- Vital Signs: VS including BP and Pulse Oximetry
- Labs:
  - Blood work: CBC with differential, CRP, blood culture
  - Viral Testing: Influenza PCR during influenza season
  - If atypical pathogen suspected: PCR Respiratory Panel
  - Sputum gram stain and culture: if intubating, collect at time of initial ET tube placement; consider testing in older children who can produce sputum sample
  - Urinary antigen detection testing is not recommended in children; false-positive tests are common.
- Radiography:
  - AP and lateral CXR

Inpatient Admission Criteria

Pediatric Floor	PICU
• Respiratory distress • SpO2 <90% on room air • Unable to tolerate PO • Suspected or documented CAP caused by pathogen with increased virulence (ex. CA-MRSA) • Concerns about observation at home, inability to be comply with therapy, inability to be followed up	• Respiratory support: Intubated or requiring non-invasive positive pressure ventilation • Concern for respiratory failure • Concern for sepsis • FiO2 needs HNFC >50% to keep saturation ≥92% • Altered mental status

Treatment Selection

Suspected Bacterial Pneumonia

Most Common Pathogens: *Streptococcus pneumoniae, Haemophilus influenzae*

Demographics	Parenteral Treatment	Oral Step-Down
Previously Health AND Fully immunized	Preferred: **Ampicillin** 50mg/kg IV q6hr (max 12g/day) Alternatives: *Non-Type 1 β-Lactam Allergy*: **Ceftriaxone** 50mg/kg IV q24hr (max 2g/day) *Type 1 β-Lactam Allergy*: **Levofloxacin** <5 years: 10mg/kg IV BID (max dose 750mg/day) >5 years: 10mg/kg IV q24hr (max dose 750mg/day)	Antibiotic choice: • If culture positive: based on cultures and susceptibilities. • If culture negative: refer to Ambulatory CAP Treatment Guidelines Antibiotic Duration: • Uncomplicated pneumonia: complete a 10 day course • Complicated pneumonia: dependent on clinical response, in general 2-4 week course
Not appropriately immunized with PCV13 + Hib OR Suspicion for *H. influenzae* OR Severe disease and/or Complicated Pneumonia	Preferred: **Ceftriaxone** 50mg/kg IV q24hr (max 2g/day) Alternatives: *Type 1 β-Lactam Allergy*: **Levofloxacin** <5 years: 10mg/kg IV/PO BID (max dose 750mg/day) >5 years: 10mg/kg IV/PO q24hr (max dose 750mg/day)	
Suspicion for *S. aureus*	***In addition*** to one of the above antibiotics, **add**: **Clindamycin** 10mg/kg IV q6hr (max 900mg/dose) For PICU or Severe Infection**: Vancomycin** 15mg/kg IV q6hr (max 4g/day)	Antibiotic choice: Based on cultures and susceptibilities Antibiotic duration: May require longer treatment

Suspected Atypical Pneumonia

Most Common Pathogens: *Mycoplasma pneumoniae, Chlamydophila pneumoniae*

Demographics	Preferred Treatment	Oral Step-Down
In ≥5yo empirically add macrolide if atypical CAP cannot be ruled out	**Azithromycin** 10mg/kg IV daily x 1-2 days then transition to oral step down if possible (max 500mg/dose)	**Azithromycin** 10mg/kg PO daily to complete a 3 day course (max 500mg/dose)

Suspected Viral Pneumonia

Most Common Pathogens: Influenza A & B, Adenovirus, Respiratory Syncytial Virus, Parainfluenza

Most common in <5yo	No antimicrobial therapy is necessary. If influenza positive, see influenza guidelines for treatment algorithm.

CONSIDERATIONS

- Children should show clinical signs of improvement within 48-72 hours allowing de-escalation of therapy based on available culture results and consideration of transition to oral step-down therapy
- If no improvement or worsening pursue further diagnostic work up as indicated, consider broadening antibiotics and formal infectious disease consultation

Antimicrobial Stewardship Program Approved 2018

REFERENCES: Bradley IDSA CAP Infants & Children 2011;AAP endorsed; Ficnar B, et al. Azithromycin: 3-Day Versus 5-Day Course in the Treatment of Respiratory Tract Infections in Children. J Chemother. 1997;9(1):38-43. Kogan R, et al. Comparative Randomized Trial of Azithromycin versus Erythromycin and Amoxicillin for Treatment of Community-acquired Pneumonia in Children. Pediatr Pulmonol. 2003; 35(2):91-8.