

# Empyema Care Guideline

## Inclusion Criteria – Previously healthy children

- Infants > 3 months of age
- Suggestion of clinically significant effusion on chest x-ray

## Exclusion Criteria

- Infants < 3 months of age
- Sepsis/shock/multiple organ dysfunction syndrome (MODS)
- Pneumonia without effusion (use Community Acquired Pneumonia Care Guideline)
- Toxic appearance, impending respiratory failure

**Assessment:** Respiratory status (increased rate for age, signs of increased work of breathing such as retractions or use of accessory muscles), O2 Saturations, vital signs, immunization status

**Interventions:** Continuous pulse oximetry, oxygen to keep sats  $\geq$  93%, IV hydration, CBC w/ manual differential, ESR, CRP, and blood culture, ID consult

Go to Community Acquired Pneumonia Care Guideline

Chest Ultrasound

+ Effusion

No

No

Hx of MRSA, presence of pneumatoceles

Yes

Administer Ceftriaxone 50 mg/kg IV q 12 hrs (Max: 2 gm q 12 hrs)

Administer Ceftriaxone 50 mg/kg IV q 12 hrs (Max: 2 gm q 12 hrs) AND Clindamycin 10 mg/kg IV q 6 hrs (Max: 600 mg/dose)

Surgery Consult

Stage 1 Simple Effusion

Chest tube vs VATS

Chest tube to suction, pleural fluid diagnostics

Stage 2 or 3 Complex Effusion

Imaging: Chest CT with & without contrast

VATS (videoscopic-assisted thoracoscopy surgery) within 24 hrs of diagnosis

## Continued Considerations

- Saline lock IV once tolerating oral fluids
- Consider oral antibiotics based on culture results and clinical improvement

## Discharge Criteria

- Stable for 24 hrs after chest tube removal
- Diet tolerated and adequately hydrated
- No supplemental O2 needed for at least 24 hrs; meets room air criteria\*
- Follow-up care coordinated; home IV antibiotic therapy arranged if ordered

## \*Room Air Criteria

O2 sat  $\geq$  90%  
RR WNL for age  
Infants 30-60  
Toddlers 24-46  
Preschoolers 22-34  
School age 16-30  
Adolescents 16-20

## Recommendations/ Considerations

- Empyema is the presence of pus in the pleural space
- The most common pathogens seen in empyema are *S. pneumoniae*, *Staphylococcus aureus*, and *S. pyogenes*, although some cases may be culture negative.
- Early VATS has been shown to decrease hospital length of stay
- Pleural fluid diagnostics should include: Gram stain & culture, LDH, total protein, pH, cell count, differential

## American Thoracic Society Classifications of Empyema

- Stage 1: Exudative
- Accumulation of thin pleural fluid w/ few cells
  - Pleura & lung are mobile
- Stage 2: Fibropurulent
- Infected pleural fluid consolidation & accumulation of fibrous material
  - Formation of loculations
  - Loss of lung mobility
- Stage 3: Organizing
- Thick fibrous peel formation
  - Lung entrapment

## Patient/Family Education

- Handout: Complicated Pneumonia-Pleural Effusion and Empyema (located on PAWS Patient and Family Education)

Reassess the appropriateness of Care Guidelines as condition changes and 24 hrs after admission. This guideline is a tool to aid clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.

## References

### Empyema Care Guideline

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