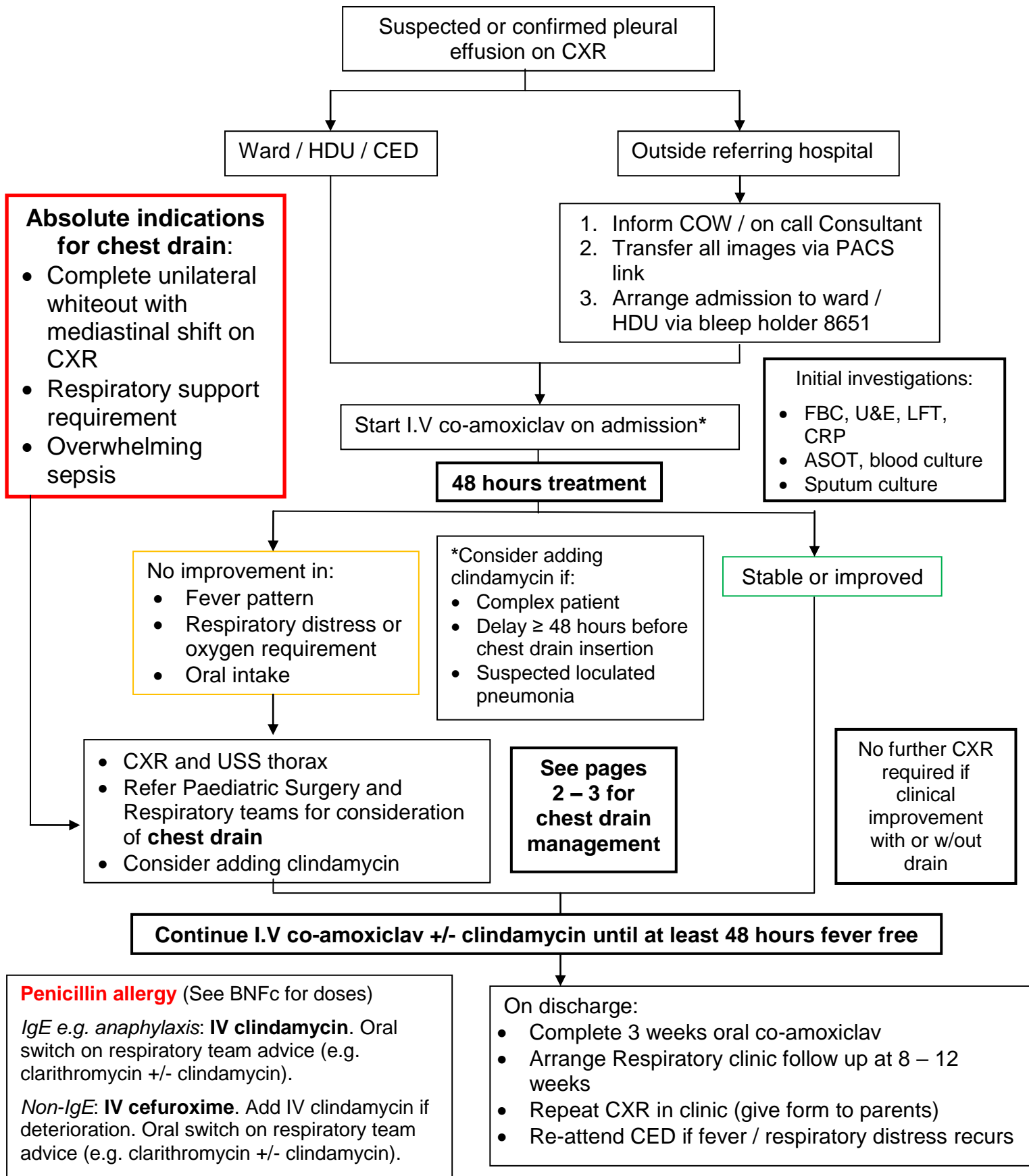


Pleural effusion and complicated pneumonia

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Conservative treatment principles:

- Change antibiotic only if resistant organism or after discussion with microbiology.
- Oxygen for SpO₂ < 92%.
- Intravenous fluid if child dehydrated or unable to drink – 2/3rds maintenance.

Chest drain management

Surgical Unit policy – RACH is not a primary VATS centre

Timing of chest drains

Optimal timing of chest drain is up to day 5 of admission.

If > 5 days, respiratory / HDU / surgical MDT discussion regarding optimal procedure necessary.

Type of drain

The agreed Surgical unit policy is to use a **Softer Portex catheter** (comes with three-way tap) as standard first line chest drain.

Use of pigtail catheters may reduce the incidence of tube displacement; need for post-operative opioid infusions; length of patient immobility.

Important points if any intervention undertaken

1. Any coagulopathy or platelet defect should be corrected prior to theatre.
2. Ensure sufficient pleural fluid is taken in theatre. Send to lab for:
 - **Gram stain and culture**
 - **Cell differential count:** Please include a cytology request form and state that if lymphocytosis identified by micro then specimen must be sent to cytology. (*lymphocyte predominance raises the possibility of tuberculosis or malignancy*)
 - **Pneumococcal PCR** (lab to send this off for all culture-negative specimens).
3. **Discuss long-line insertion:** consider early in course of illness (it may be the best time to insert it when the patient is taken to theatre for the procedure). Identify person to consent and insert long-line e.g. Anaesthetist, I.V. team or Paediatric Registrar. Ensure contingency plan if long-line insertion unsuccessful e.g. neck line, femoral line or peripheral line.
4. Chest radiograph must be checked after procedure to confirm drain position

Urokinase

All children with chest drain in-situ to have urokinase.

Twice a day for at least 3 days:

Age < 1yr: urokinase 10 000 units in 10ml 0.9% saline

Age > 1yr: urokinase 40 000 units in 40ml 0.9% saline

Once infused the drain should be clamped for 4 hrs.

NB. Urokinase may be out of stock. Please discuss with pharmacy before starting treatment.

Alternative treatment is with Alteplase

Dose 0.1mg/kg (max 4mg) via the chest drain daily for 3 days

- in 10ml sodium chloride 0.9% for patients <1 year of age
- in 40ml sodium chloride 0.9% for patients ≥ 1 year of age (smaller volumes may be used at the discretion of the clinical team)

Once infused the drain should be clamped for 4 hrs.”

If the response is incomplete after 3 days, further doses can be considered.

Drain should be clamped for 1hour if > 10ml/kg of pleural fluid is drained at one time.

Improvement?

If the patient is afebrile for 24 hours and < 50mls/day is draining then consider drain removal.

CXR to be done **after** drain removed to rule out air leak.

No improvement?

If fever not settling > 48 hours with drain → repeat chest ultrasound

If no improvement after 7 days of treatment following chest drain insertion, surgical options (mini-thoracotomy or VATS) should be considered.

A CT scan also may be considered.

Notes

Immune evaluation: should be undertaken only when there is a history of recurrent infections, failure to thrive (pre-illness) a family history of immune dysfunction, a poor response to treatment or an unusual organism is isolated.