# **Management of Paediatric Spontaneous Pneumothorax**

# DIAGNOSIS

A **diagnosis** is based on clinical suspicion and confirmed by chest x-ray (CXR) and/or lung POCUS. Pleural sliding in all zones excludes pneumothorax in most instances.

### **INITIAL PATIENT MANAGEMENT**

A+B: Initially 15L non-rebreathe mask oxygen and continuous SpO<sub>2</sub>. NIV contraindicated until chest drain inserted

**C**: Continuous ECG monitoring, regular BP and intravenous access, blood gas

D: Assess and treat pain

E: Prepare for possible chest drain insertion and/or needle aspiration

F: Nil by mouth, intravenous fluids if indicated

#### \*\*PAEDIATRIC CRASH CALL\*\*

**Immediately decompress** the side of the tension pneumothorax using either *needle decompression* with a large bore (14G/16G) cannula:

■ **Option 1:** 4<sup>th</sup>/5<sup>th</sup> intercostal space (triangle of safety), mid-axillary line is preferred

■ Option 2: 2<sup>nd</sup> intercostal space, mid clavicular line

→ DO use ultrasound if available
→ Do NOT insert the full length of the needle, stop advancing once air is aspirated

■ **Option 3:** In an unconscious and/or intubated patient, perform a thoracostomy

→ DO **NOT** wait for chest X-ray Following intervention, proceed to chest drain insertion

\*On chest x-ray estimate the percentage of hemithorax the pneumothorax occupies. In adolescents, measure the widest part of pneumothorax in cm.

## CHEST DRAIN INSERTION

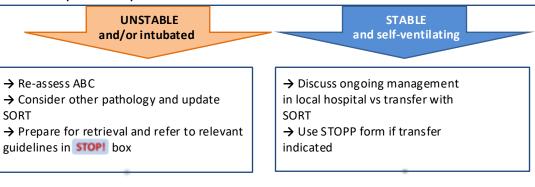
#### → Phone SORT early for advice

→ Prepare for intubation, refer to SORT: Intubation checklist in STOPI box (in some compliant children, chest drains may be inserted under sedation and local anaesthetic)
→ Choice of chest drain insertion technique should depend on operator experience and available support. SORT recommends surgical chest drain (blunt dissection). If using Seldinger technique must use ultrasound.

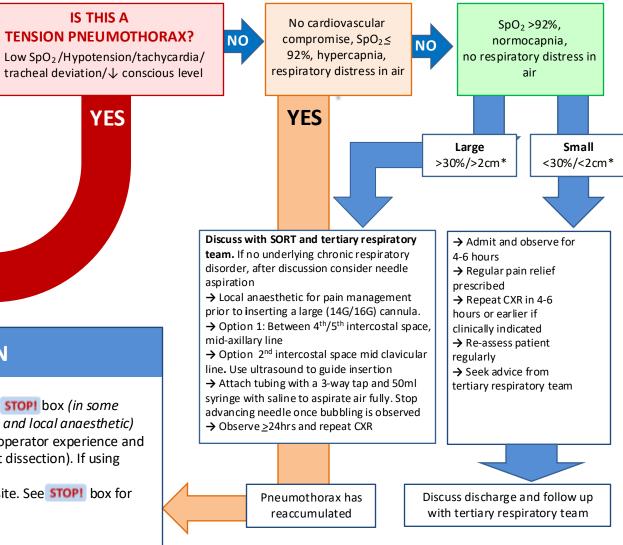
→ Chest drain Insertion technique video available on PIER website. See **STOPI** box for further guidance.

- → Re-assess patient
- → Chest X-ray to confirm position of drain
- → Prescribe regular analgesia

WARNING! The Seldinger technique carries the risk of intraparenchymal mis-placement of the chest drain (NPSA 2008)



Management depends on patient stability, pneumothorax size, if it's a reoccurrence and the type (primary or secondary). These patients should be discussed with the tertiary respiratory team early to guide management. If clinically unstable phone SORT.



# STOP! Call SORT (023 8077 5502)

→ RE-ASSESS THE PATIENT REGULARLY. A simple pneumothorax can evolve into a tension pneumothorax
→ Have you got enough help and assigned roles?

SORT: Intubation Checklist SORT: Caring for the Ventilated Child Checklist SORT: Initiation of ventilation during stabilisation PIER: Chest Drain Insertion video Guide

> SORT Jan 2025 Review 2028 www.sort.nhs.uk