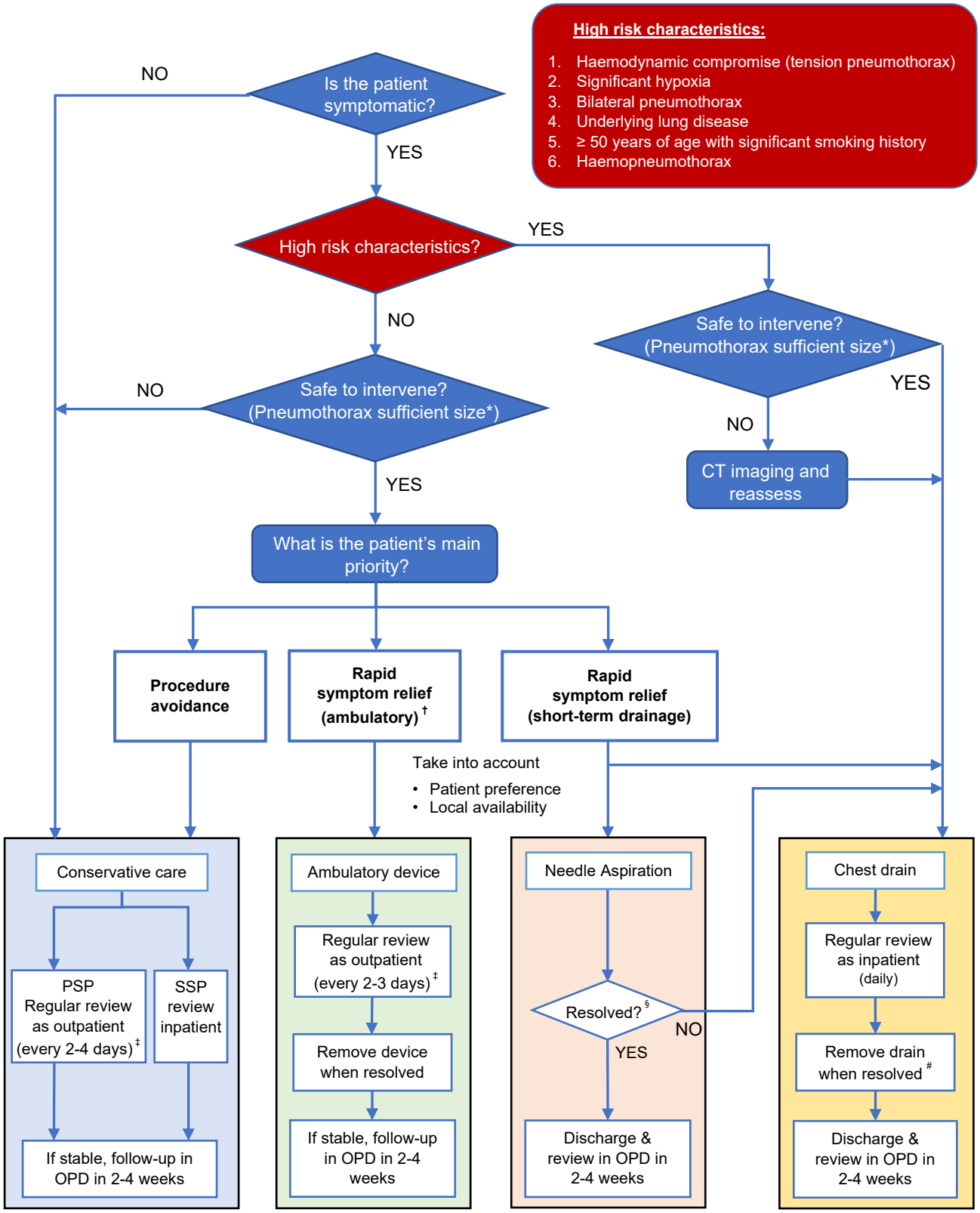
Appendix 1 – Clinical pathways/decision trees

Pneumothorax Pathway



* Pneumothorax of sufficient size to intervene depends on clinical context but, in general, usually ≥ 2cm laterally or apically on CXR, or any size on CT scan which can be safely accessed with radiological support.

† If ambulatory pathway available locally.

‡ At review, if enlarging pneumothorax or symptoms consider chest drain insertion and admission.

§ Success: improvement in symptoms and sustained improvement on CXR.

Talc pleurodesis can be considered on the first episode of pneumothorax in high risk patients in whom repeat pneumothorax would be hazardous (eg, severe COPD).

CXR, chest X-ray; COPD, chronic obstructive pulmonary disease; OPD, outpatient department; PSP, primary spontaneous pneumothorax; SSP, secondary spontaneous pneumothorax.

Needle Aspiration Method

1) Carry out the procedure in resus room
2) Inform the patient about the planned procedure and obtain consent
3) Position the patient in an upright, slightly reclined position
4) IVA should be considered as patient may become vagal
5) Identify the insertion point (mid-clavicular line in the 2nd intercostal space, superior edge of the rib) and mark with a pen
6) Put on a gown and sterile gloves, clean the area with antiseptic solution
7) Using an aseptic technique, infiltrate local anaesthetic (1% lidocaine)
8) Insert a14g cannula (attached to a 10 ml syringe containing sterile normal saline) through the chest wall at the insertion point, 90 degrees to skin.
9) Aspiration of air confirms correct placement
10) Remove the syringe and withdraw the metal needle from cannula.
11) Attach a short connecting piece of tubing and a 3-way connector to the cannula
12) Aspirate via a 50 ml syringe, turn the tap and dispel the air into the atmosphere
13) Turn the tap again and aspirate another 50 ml from the pleural cavity
14) Continue until the patient coughs, 2.5 litres have been aspirated or no more air can be aspirated
15) If the procedure is successful, the cannula should be removed and a small occlusive dressing placed over the insertion site
16) Repeat the Chest X-Ray
17) If the procedure is unsuccessful proceed to insertion of a thoracostomy tube.
18) See referral guideline for IRH / RAH, and give patient information leaflet.

Key points

- Failure to attach the cannula to a connecting piece of tubing increases the likelihood of tube kinking or ‘accidental removal’
- A minimum of two persons are required for this procedure, one to manually secure the cannula and turn the connector, the other to perform the aspiration
- This is a time consuming procedure (50 times x 50 ml) but success rates are relatively high

Adapted from RCEM guidelines. Last review March 2024