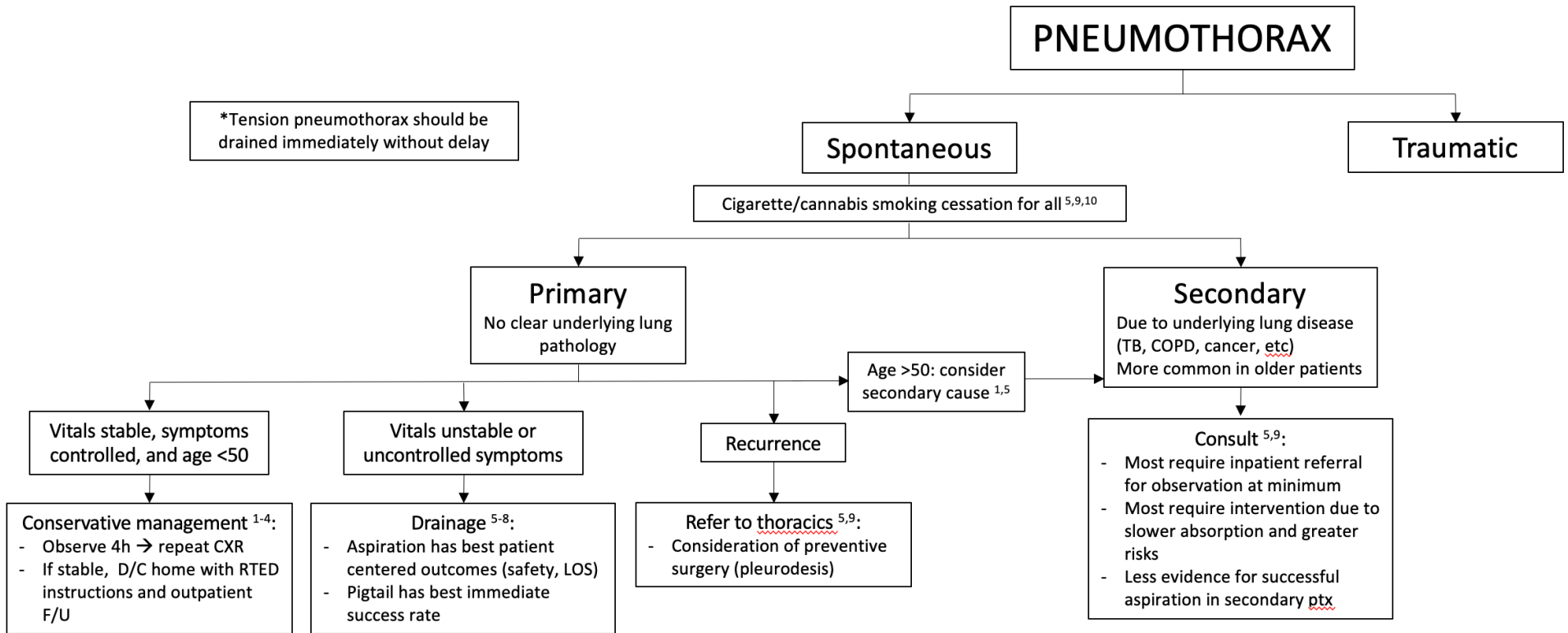


MANAGEMENT OF PNEUMOTHORAX

- Historically chest tube intervention for spontaneous pneumothorax was popularized in the 1950s-60s due to increased ease of use with innovations around plastic catheters and closed system suction (1,2).
- However, there has never been evidence for this practice, or even for intervention, in patients with primary spontaneous pneumothorax (PSP) who have stable vitals and symptoms; studies have actually shown that most PSPs will reabsorb over time without posing significant risks, and symptoms tend to resolve quickly without intervention (3-6).
- Limited trials in the past several decades have mostly targeted radiologic resolution as opposed to patient centered outcomes (1); these have mostly focused on aspiration compared to chest tube intervention. Overall, studies have shown that aspiration tends to reduce hospital length of stay (LOS) and adverse events, but with reduced immediate success, compared with intercostal tube interventions (7-9).
- Guidelines across the world have been variable regarding management approach, without much evidence base: British, American, and European guidelines each use a different approach to measuring size of pneumothorax with thresholds for intervention that are not well correlated with each other and are based on expert opinion only (i.e. have no basis in evidence) (10-12).
- The landmark 2020 NEJM randomized controlled trial by Brown et al. included 316 patients aged 14-50yo with first PSP. It provided compelling evidence that conservative management is non-inferior compared to Seldinger intervention for patients with moderate to large first PSP who have stable vitals and symptoms in terms of radiologic resolution at 8 weeks, as well as duration of symptoms. The conservative management group had improved patient centered outcomes including reduced LOS, adverse events, recurrences in one year, and days off work (6).
- Pediatric studies are limited and most guidelines around management are based on adult studies; however, there is some evidence of higher recurrence rates in younger children and decreased success rates of aspiration for large pneumothorax (13).

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