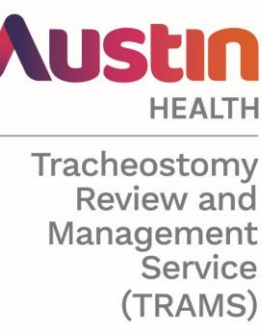


A Multi-Faceted Tracheostomy Decannulation Pathway Facilitates Successful Decannulation

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Background

A number of decannulation protocols and flowcharts have been proposed in an attempt to optimize decannulation practice¹⁻⁴. Currently no universally accepted method exists⁵. The Tracheostomy Review and Management Service (TRAMS) at Austin Health, Melbourne, Australia is a consultative multi-disciplinary team, which reviews and manages adult tracheostomy patients from the intensive care unit to the community⁶. Austin Health is a tertiary metropolitan health service with state-wide services including the Victorian Respiratory Support Service (VRSS), Victorian Spinal Cord Service and Victorian Liver Transplant Unit. Patients requiring prolonged mechanical ventilation are jointly managed by TRAMS and VRSS. While TRAMS have an established decannulation process, it has not been formally described.

Aims

- To describe the two decannulation pathways currently in use at Austin Health; one for spontaneously breathing patients (SBP) and one for patients with prolonged mechanical ventilation (PPMV)
- To identify the additional decannulation steps (ADS) frequently used to achieve decannulation
- To quantify how many patients utilize ADS in order to achieve decannulation

Method

- Two decannulation pathways were formulated to reflect the multi-disciplinary clinical practice and decision-making at Austin Health
- A retrospective review of the patients seen by the TRAMS between September 2015 and May 2019 was conducted. The Global Tracheostomy Collaborative database was searched to identify the number of successfully decannulated patients and which patients utilised ADS.
- The ADS were identified as:
 - 1) Changed and/or downsized tracheostomy tube +/- ENT assessment
 - 2) Cough augmentation techniques
 - 3) Secretion management strategies
 - 4) Nocturnal non-invasive ventilation (NIV) trial
 - 5) Decannulation to NIV
 - 6) Decannulation to mini-tracheostomy
 - 7) Decannulation to silicon stoma stent

Results

- Two multi-faceted tracheostomy decannulation pathways were developed (**Figures 1 & 2**).
- 383 tracheostomy-patient admission, of which 271 (71%) survived the hospital admission and were successfully decannulated.
- 132 (49%) utilized the ADS to facilitate successful decannulation. Changed and/or downsized tracheostomy tube (n=42); Decannulation to mini-tracheostomy (n=27); Decannulation to non-invasive ventilation (n=35); Decannulation to silicon stoma stent (Montgomery Cannula™) (n=28).

Conclusion

Two multi-faceted decannulation pathways have been described that facilitate successful decannulation for spontaneously breathing and mechanically ventilated patients. Retrospective analysis has demonstrated that approximately half of our patients required ADS to facilitate decannulation. While tube changes and downsizing are frequently identified in the literature to facilitate decannulation, the use of mini-tracheostomies, stoma stents and NIV have not to our knowledge previously been described in a single comprehensive model. The complexity of this work reinforces the benefit of an expert multi-disciplinary approach. Future directions include prospective evaluation of these pathways.

References

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Figure 1 - Multi-faceted Tracheostomy Decannulation Pathway for Spontaneously Breathing Patients

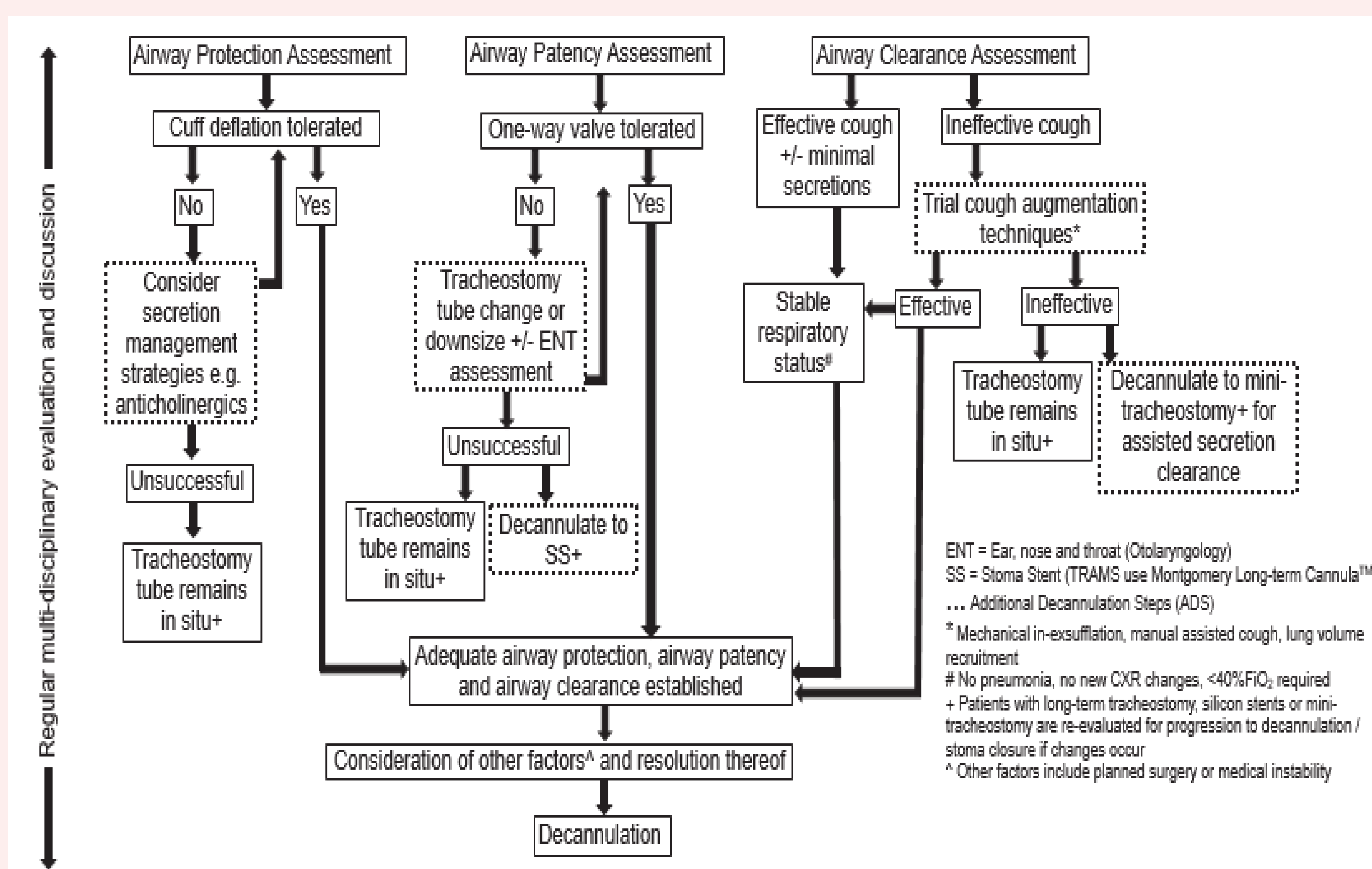


Figure 2 - Multi-faceted Tracheostomy Decannulation Pathway for Patients Requiring Prolonged Mechanical Ventilation

