

It's only a failure if you don't learn something – a review of paediatric tracheostomy decannulation.

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Objectives

A retrospective review to investigate the failure rate of decannulation in paediatric patients with a tracheostomy and to think about the reasons affecting success or otherwise of decannulation.



Failure is success if
we learn from it.

Malcolm S. Forbes

“ quote fancy

Facts and figures.

- First described in 1546 by Antonio Musa Brasavola.
- Incidence increased in the 19th century during epidemics of polio and diphtheria.
- Decline with introduction of immunisations.
- Increased use in children with complex needs.

- Douglas et al (2015) identified 111 children (2001 – 2012).
- Wood et al (2012) reported 1613 children (2005 – 2009).
- Wallis et al (2011) 22% patients receiving long term ventilation also had a tracheostomy.

Reasons for decannulation

Risks of a tracheostomy:

- Associated with significant morbidity and mortality.
- Negative impact on language and social development.
- Significant financial burden on NHS and Social Care services.
- Psychosocial effects on child and family.

When the initial indication for a tracheostomy no longer exists decannulation should be considered.

Decannulation protocol.

Paediatric Tracheostomy guidelines,
Southampton University Hospitals NHS
Foundation Trust, 2014.

Decannulation protocol:

- Assessment of airway.
- Downsize.
- Occlude tube.
- Remove tube and observe.

Method.

- Retrospective review over 30 months (May 2013 – November 2015).
- 13 patients identified.
- 17 trials of decannulation.
- Mean age of 53 months (6 months – 16 years)
- 5 female 8 male.
- Grouped according to original indication for insertion.

Group 1 = Upper airway obstruction.

Group 2 = Reduced respiratory effort i.e neuromuscular conditions, spinal injuries.

Group 3 = Ventilator weaning – conditions with recognised ability to improve i.e. traumatic brain injury, chronic lung disease.

Results

- 13/17 had a formal evaluation of upper and lower airway prior to decannulation.
- 4/17 had bronchoscopic evaluation of the lower airway (mainly from group 3).

Successful decannulations:

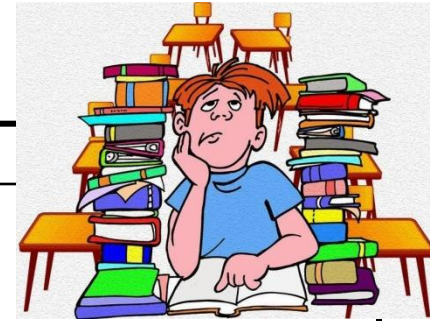
Group 1 = 1/6 (16%)

Group 2 = 3/5 (60%)

Group 3 = 4/6 (66%)



Literature review

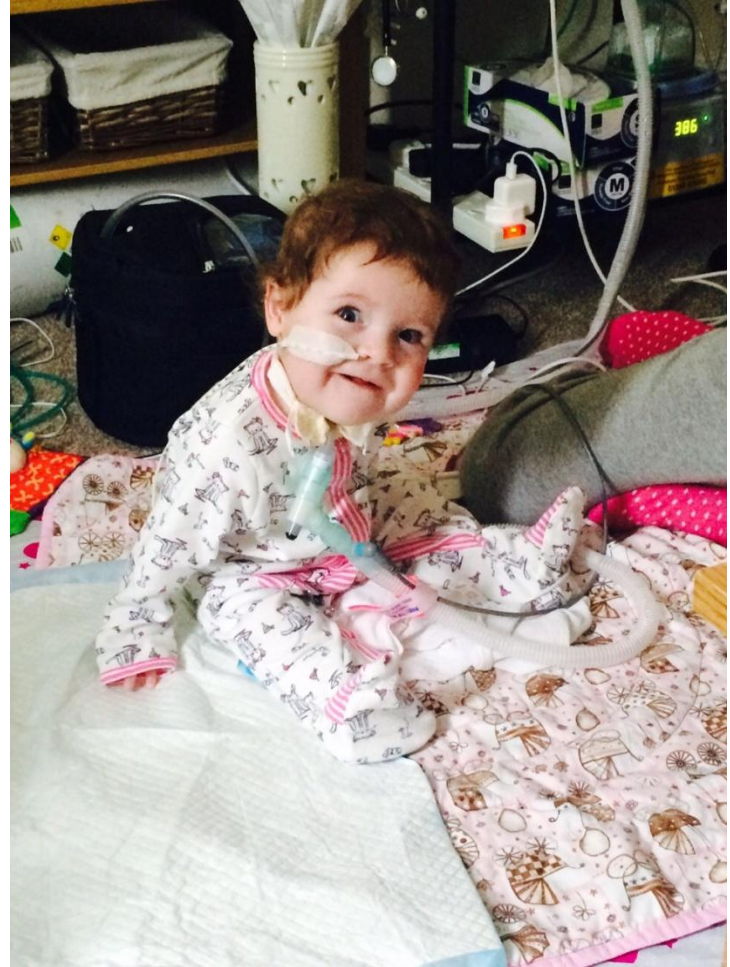


Author	Title	Results
Ogilvie L, Kozak J, Chiu S, Adderley R and Kozak F (2014)	Changes in pediatric Tracheostomy 1982 – 2011, a Canadian tertiary children's hospital review.	231 patients retrospectively reviewed. 63% decannulated. If primary indicator: <ul style="list-style-type: none"> •Infection = 100% •Trauma = 77% •UAO = 73% •Neurological impairment = 20%.
Süslü N, Ermutlu G and Akyol U (2012)	Pediatric tracheotomy: comparison of indications and complications between children and adults.	53 children retrospectively reviewed. 34.5% decannulated. Main indication for insertion: <ul style="list-style-type: none"> •Prolonged intubation = 89.4% •UAO = 15.1%.
Funamura J, Durbin-Johnson B, Tollefson T, Harrison J and Senders C (2014)	Pediatric Tracheotomy: Indications and decannulation outcomes.	113 patients. 31.9% decannulated. Indications for insertion: <ul style="list-style-type: none"> •Cardiopulmonary disease = 21.2% •Craniofacial anomalies = 10.6% •Neurological impairment = 38.9% •Trauma = 9.7% •UAO 19.5%.
Atmaca S, Bayraktar C, Aşilioğlu N, Kalkan G and Özsoy Z (2011)	Pediatric tracheostomy: 3-year experience at a tertiary care center with 54 children.	54 tracheotomies. Decannulation rate = 14.8% due to high percentage of patients needing ventilation and short follow up period.
Sidman J, Jaguan A and Couser R (2006)	Tracheotomy and decannulation rates in a level 3 Neonatal Intensive Care Unit: A 12 year study.	66 patients. Decannulation = 62%.
Nassif C, Zielinski M, Francois M and van den Abbeele T (2015)	Tracheotomy in children: A series of 57 consecutive cases.	57 patients. 27 (44%) patients were decannulated with a mean duration of 26 months.

Patients have other ideas...

Mia

“We trialed decannulation on 29/1/2015 but this was not well tolerated and despite patience, Mia dropped her oxygen saturations markedly”



Lottie

- ↓ Oxygen saturations despite increased pressures.
- Airway evaluated under general anaesthetic.
- Tracheostomy downsized.
- Safely decannulated on HDU
- Day 2 – sudden respiratory arrest – intubated & ventilated = admitted to PICU
- ? Intercurrent infection.
- Extubated → HDU on weaning BIPAP via face mask.
- Severe blue episode overnight – back to PICU.
- R/O tonsils, trial of NP airway.
- Anxious +++

- New diagnosis = Paroxysmal nocturnal pharyngeal dystonia.



- ? Post cerebral injury.
- ? Medication.
- Neurologists gave a trial of therapy – no benefit.
- Tracheostomy reinserted.

Nixon

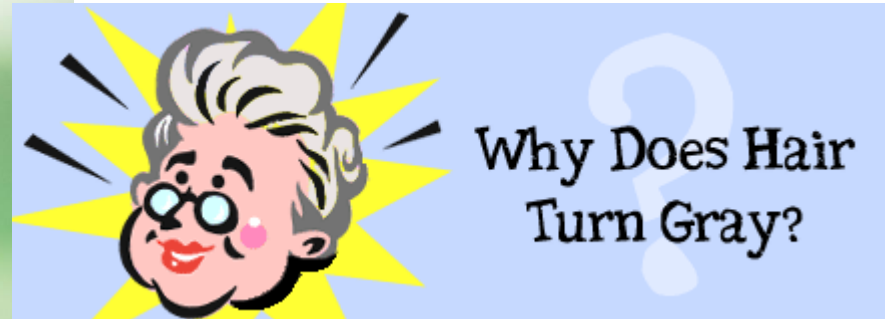


- Decannulated August 2015.
- Admitted to PICU with flu Winter 2015.
- Tracheostomy reinserted to facilitate weaning from ventilator.
- Decannulated 12 days later.

Lessons learnt

- Reflection helps review effectiveness of interventions.
- Giving correct information to patients and families.
- Full MDT assessment.
- Being cautious when discussing the success of decannulation in children with UAO.

Life goes on after a failed decannulation.....



Care and support
on good days,
difficult days
and last days.
24/7



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Any questions?