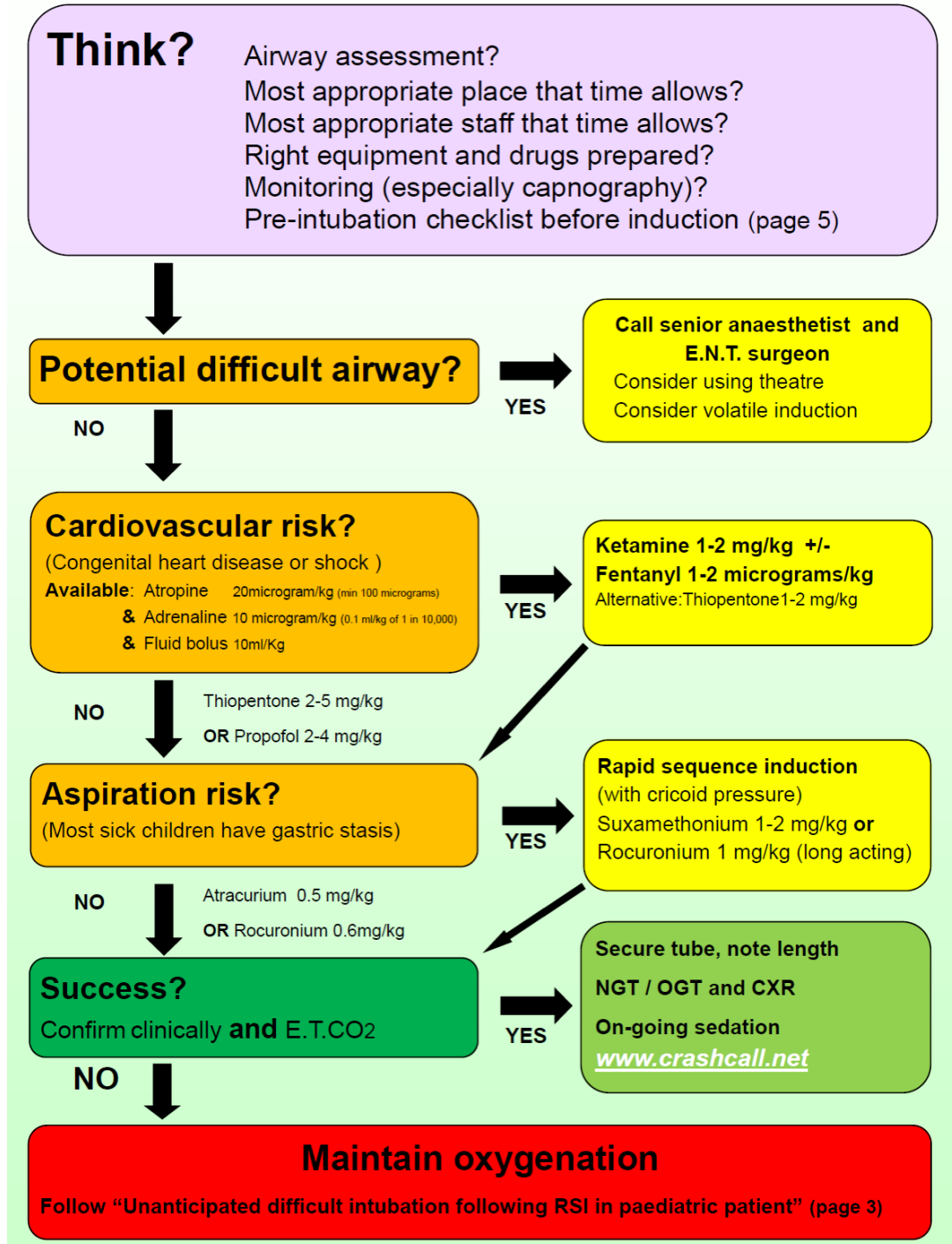


Paediatric Airway Flowsheets and Protocols

Guidance for acute paediatric intubation



**Guidance for acute paediatric intubation— associated notes**

**Consider potential airway difficulties (problems with mask ventilation / laryngoscopy / intubation):**

Patient factors (syndromes / deformities etc.) – ensure thorough airway examination  
 Previous difficult intubation (check grade laryngoscopy in notes / method of intubation used)  
 Disease factors (infections/trauma/allergy/foreign bodies etc.) affecting the head, neck or airways

**WARNING: do not examine airway if patient has stridor—may cause deterioration pre-intubation**

**Consider significant deterioration on induction:**

Potential limited cardiac reserve e.g. sepsis, low output states, congenital heart disease, arrhythmias  
 Potential limited pulmonary reserve e.g. pulmonary oedema, chronic lung disease, asthma

**IF HIGH RISK DO NOT PROCEED WITHOUT CONSULTANT ADVICE (local and NWTS)**

If difficulty is anticipated and time allows move patient to the anaesthetic room / theatre or move equipment and personnel to patient: ensure consultant anaesthetist and ODP (or equivalent) present.

**Pre-oxygenation:** If possible pre-oxygenate with 100% oxygen for 3 minutes

**Rapid sequence induction** unless gas induction by senior anaesthetist indicated (difficult or obstructed airway)

**Cricoid pressure** by trained practitioner

**Modified RSI (infants and most sick children):** may need to give low tidal volume breaths with cricoid pressure on to preclude desaturation before intubation (low oxygen reserve/ high consumption and paralysis may take longer to take effect if any CVS compromise).

**Induction agents:** (Intraosseous route can be used safely for all induction agents and muscle relaxants)

**Cardiovascularly unstable patients:** consider ketamine +/- fentanyl (ketamine may (lacks evidence) increase intracranial pressure) balance risk/benefit in raised ICP

Thiopentone reduces intracranial pressure but causes hypotension.

**Neonates:** consider using fentanyl for unstable neonates as a sole induction agent (1-3microgram/kg)

**Inhalational anaesthetics:** only by doctors familiar with the anaesthetic machine and technique

**Inotropes:** should be immediately available to offset negative effects of induction agents (i.e. drawn up and in the infusion pumps or ready to bolus [www.crashcall.net](http://www.crashcall.net)) if not available then 1 ml aliquots of (0.1 ml/ kg of 1:10,000 adrenaline solution made up to 10 mls total with 0.9% NaCl) is useful for hypotension

**Muscle relaxants:**

**Suxamethonium** is drug of choice for RSI (onset 30-45sec, duration 3-5 min) but many contra-indications (including hyperkalaemia, some neuro-muscular pathologies, suspected malignant hyperthermia or 24 hrs after burn or spinal injury).

**Rocuronium** - rapid onset of action at 1mg/kg (approx 1 min and no fasciculations) but a much longer duration (>40min). Can be reversed rapidly (if patient suitable to be woken up!) with sugammadex 16mg/Kg (but this is not widely available (especially outside theatre) and is **NOT** carried by NWTS)

**Post intubation checks:** See ET tube through cords, **E.T.CO<sub>2</sub>**, SpO<sub>2</sub> and auscultation

Check tube length, minimal leak, Melbourne strapping and CXR for ET tube position

**Cuffed endotracheal tubes:** Consider if poor compliance expected, airway soiling or difficulty sizing tube.

Microcuff<sup>®</sup> tubes are becoming more popular in >3Kg children but sizing and markings on tube are slightly different (careful with length). Ensure cuff is at minimum pressure possible (max 20 cm H<sub>2</sub>O).

**Oro/Nasogastric tube to decompress stomach:** contra-indications to NGT include basal skull fracture and coagulopathy.

**Maintenance of anaesthesia, sedation and ventilation:**

Consider morphine and midazolam infusion/boluses as per [www.crashcall.net](http://www.crashcall.net) guideline except:  
 Bronchospasm (consider ketamine / midazolam / fentanyl), renal / liver failure (fentanyl / midazolam).  
 Have post-procedure sedation and paralysis ready to commence prior to induction.

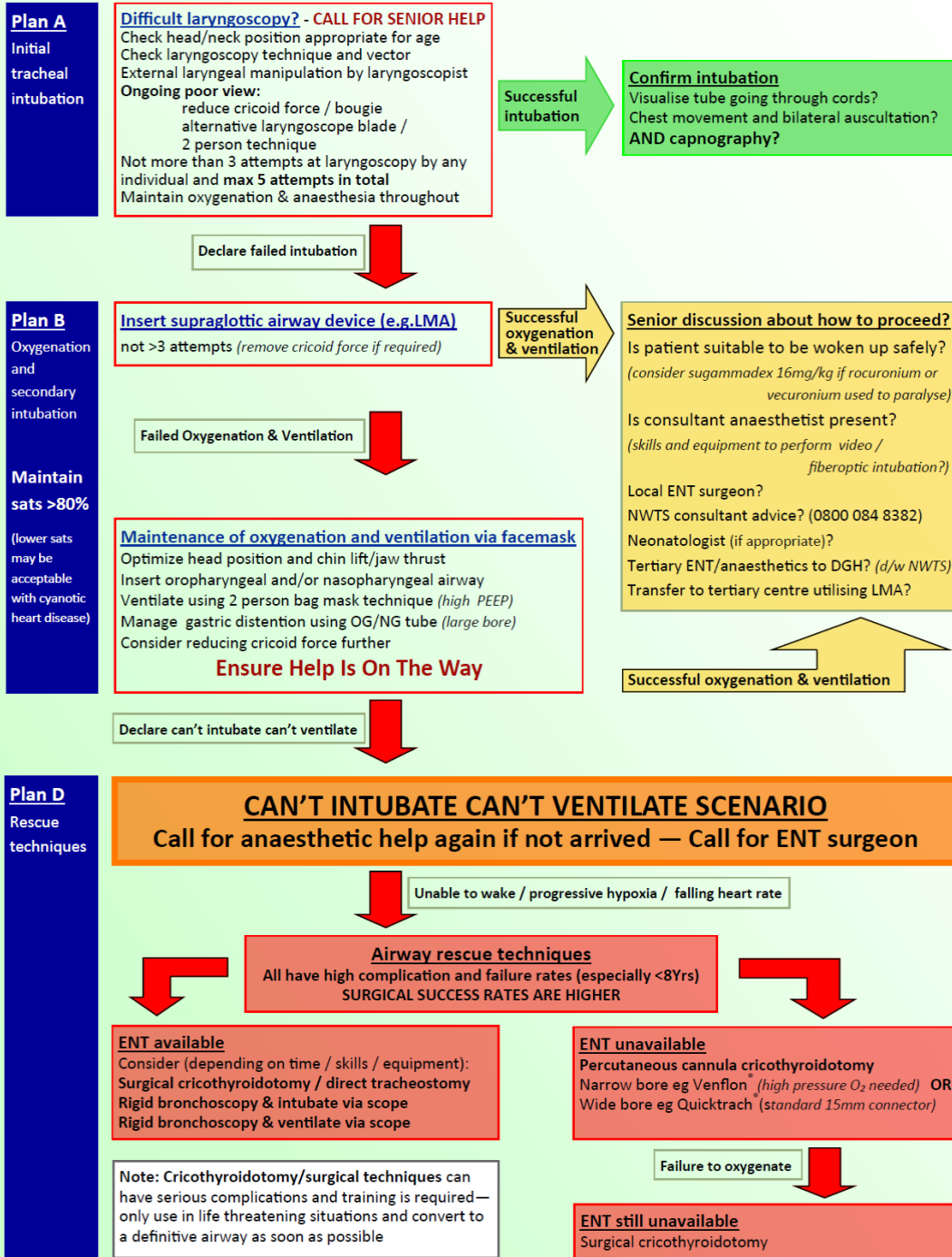
**Failure to intubate - Maintain oxygenation**

follow “Unanticipated difficult intubation following RSI in paediatric patient” guideline (page 3)

**Guidance for acute paediatric intubation**

**Unanticipated difficult intubation following RSI in paediatric patient**

(assumes pre-oxygenation performed and 100% O<sub>2</sub> used throughout)



*Guidance for acute paediatric intubation*

**Unanticipated difficult intubation following RSI in paediatric patient**

**Notes and advice on procedures**

**Tips to achieve intubation:**

Check position of head and neck: aim for neutral alignment in neonates and infants, “sniffing the morning air” in the older child  
 Check laryngoscope vector (midline) and technique (scope in vallecula or lifting epiglottis directly, try both)  
 External laryngeal manipulation by the person doing laryngoscopy: use little finger in neonates and infants  
 Cricoid pressure can distort/occlude the airway—reduce/remove and reassess change  
 Consider alternative laryngoscope blade  
     Cardiff blade in neonates  
     McCoy blade in older children  
 Consider a bougie if poor view of glottis. Do not seek hold up (adult technique of pushing bougie until it lodges in bronchi) as high risk of perforation/pneumothorax especially in neonates/infants  
 Consider 2 person technique:  
     Operator 1 - laryngoscope + external laryngeal manipulation  
     Operator 2 - insertion of bougie/endotracheal tube over operator 1’s shoulder  
 Bag mask ventilation to maintain oxygenation between attempts - use OG/NG tube to continually decompress stomach

No more than 3 attempts at intubation by initial operator. A second operator (preferably consultant anaesthetist or someone more experience in paed airway management) may have further attempts at direct laryngoscopy up to a maximum of 5 in total (when combined with all previous attempts). If unsuccessful a different strategy should be employed to ventilate and secure the airway- repeated unsuccessful attempts at laryngoscopy will cause airway oedema and exacerbate the situation.

**If oxygenation and ventilation are not adequate at any point between attempts - proceed down failed intubation pathway - oxygenation is paramount.**

Author: P Henman  
 Date: May 2017  
 Review: May 2019