

PAEDIATRIC AIRWAY MANAGEMENT

II. TROLLEY SET-UP



This document provides guidance on paediatric airway equipment, aiming to offer a framework from which a safe and robust system can be built. The focus will be on the logistics of storing and maintaining airway equipment. This document is a consensus opinion of the authors listed below:

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Trolley Setup

When considering the setup of airway equipment, there are a few principles which, if followed, can simplify what could become a very complicated process.

1. **Do not over-complicate.** The solution to airway difficulty is often a sensible approach with meticulous technique, not the most advanced equipment available
2. **Equipment must be familiar** to all staff. Regular exposure and, if necessary, regular formal training should be ensured
3. **Avoid unnecessary advanced airway equipment.** Choose few devices which are easy to use and familiar to staff (nursing and medical)
4. **Avoid duplication.** This will only lead to waste as equipment goes out of date
5. **A schedule and system of checking equipment** must be put in place, otherwise the contents will become inconsistent
6. **Maintain consistency.** Make sure all trolleys are kept the same, especially if implementing change
7. **Small working group.** Involve relatively few colleagues initially, work out a system which will suit your needs then communicate with a wider audience
8. **Communication.** Keep nursing and management in the loop throughout; they will be vital in the successful implementation of any new system or change in practice.
Likewise, do not assume other departments will accept a change just because you want to drive it forward. Involve them from the start, making clear the advantages to a hospital-wide approach

In a centre with universally available basic airway equipment (e.g. tertiary centre; all airway equipment is available and the correct sizes), it is possible to adopt a single trolley which stores only advanced airway equipment. The equipment stored within is tailored to be used only in an **anticipated** difficult airway under, to some degree, controlled circumstances. This is most likely to be used within a theatre suite but, less often, may include other areas such as the emergency department or intensive care. Only extra equipment required in particularly difficult situations should be stored making this trolley less cluttered, easier to organize, easier to check and cheaper to stock as less equipment should pass its' expiry date. This is akin to the classic 'Difficult Airway Trolley'.

In a centre without universally available basic airway equipment (e.g hospital with mostly adult practice but also some paediatric. Airway equipment is likely to be adult sizes), this may not be a useful option in isolation. There must be equipment available to manage the unanticipated difficult airway, the aetiology of which will likely be either functional or anatomical and be remediable with basic measures such as deepening anaesthesia, neuromuscular blockade, basic manoeuvres and adjuncts +/- LMA insertion.

In this case, one option is to stock a second, separate trolley – the “airway rescue trolley” or ART, similar to what has been adopted in adult practice over the last 2-3 years. The principles of this are to store together basic airway equipment required to manage difficult mask ventilation/intubation and ultimately “can’t intubate, can’t ventilate” (CICV). Equipment for the difficult airway would still be stored in a separate trolley.

Equipment within the ART may be categorized in a myriad of ways, some examples of which are listed below;

- By airway management strategy (e.g. Plan A - Initial Tracheal Intubation Plan, Plan B – Secondary Tracheal Intubation Plan) as in the Difficult Airway Society algorithms for adult practice (www.das.uk.com/guidelines/das_intubation_guidelines)
- By equipment type/purpose (e.g. mask ventilation equipment together, intubation equipment together, LMAs together)
- By the size/weight of the child (all necessary equipment for particular size of child e.g. 0-10kg stored together in one drawer, 10-20kg in another and so on). This is similar in idea to a Broselow tape, but for airway equipment only.

It is probable that a 2-trolley strategy (an ART **and** a difficult airway trolley) is most suited to a large tertiary centre. With only the minority of centres anaesthetising children in Scotland classified as tertiary centres, a third option may prove more suitable for a wider range of centres and thus may suit most Scottish centres; a single trolley incorporating equipment for **both** basic and advanced airway management. Advanced equipment (there will likely be relatively little of this) for anticipated difficult airway management is kept separately from basic airway equipment for airway rescue. For example, in a standard 5-drawer trolley the top 4 drawers may store basic airway equipment with the bottom drawer dedicate to advanced airway management equipment only. To galvanise this ideal, appropriate naming of this bottom drawer and labelling of certain equipment may be necessary to avoid inappropriate use.

However equipment is stored and organised, it **must** be in an ordered fashion which allows a structured approach to managing both airway rescue and the anticipated difficult airway without confusion.

Location(s) of Airway Equipment

Essential airway equipment (detailed previously) must be available in all areas where children are anaesthetised and recovered from anaesthesia, or where staff will be expected to manage a child's airway. Examples of such areas, whilst not exhaustive, include theatre suites, recovery areas, radiology, high dependency and intensive care, emergency departments and dental suites (especially if housed in out-patient areas).

Choice of Trolley

A trolley is ideal for this purpose due to its drawers, versatility and mobility. Once a trolley has been selected, it is important that all areas have the same make and size of trolley. The equipment contained within is likely to be reached for in an urgent or emergency situation, and familiarity is vital.

Signage and Visibility

Large, clear, bright, consistent signs will guide the eye quickly to the location of emergency airway equipment. Signage, as with trolleys, should be consistent throughout all areas. A commonly adopted colour scheme for airway equipment signs is the use of white text on a background of forest green (colour classification: Hex Triplet #228B22, sRGB 34, 139, 34). An example is included below. Labelling of drawers must be clear and concise, either with text alone or text and pictures. Visual cues stored with emergency airway equipment can be used to remind staff to call for help early and to consider early involvement of ENT surgeons.

