

# Critical Care Paediatric Grab Bag - Improving the quality of care by improving design

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## Background

Familiarity with equipment reduces the risk inherently associated with emergency intubation and critical care transfers. A paediatric 'transfer bag' was available to facilitate the provision of emergency airway management in non-theatre environment but Department of Critical Care (DCC) staff members have fed back about its bulky design, excessive weight, poor organisation, the presence of non-emergency equipment (Photo 1) and occasionally out-of-date stock.

## Problem

We ascertained that there could be an improvement in rapid accessibility of emergency equipment required for intubation and ventilation if there was a logical layout of the **DCC Paediatric Grab Bag**. Previous 'transfer bag' had bulky design, was excessive in weight with poor organisation and presence of non-emergency equipment (Photo 1).

## Methods

The transfer bag was reorganised and newly labelled (Photo 2). Compartments for paediatric intravenous (IV) access, defibrillation pads, intubation essentials, paediatric airway equipment organised in age/weight fashion were included. The airway equipment was ordered into 5 categories/pouches: **neonate, infant, preschool, primary school, big child**. Non-emergency stock was removed from the bag. A new checklist was devised (Figure 1) to aid with re-stocking after use and to ensure all equipment is checked after each use. A tag system on all the zips has been implemented to advise when the bag was last checked and subsequently sealed.

## Results

DCC staff informally report a greater level of satisfaction with the new style of transfer bag and with this a greater confidence in managing airway emergencies in non-theatre environment. This increasing confidence seems to stem from the fact that staff will be able to access emergency equipment in a constant and familiar format.



## BEFORE (LEFT)

Photo 1. Old kit, full bag with difficult to access equipment

Figure 1. (RIGHT) New bag contents

### PAEDIATRIC EMERGENCY BAG

**UPPER FRONT POUCH**

Bag valve mask  
Mapleson F paediatric circuit  
Stethoscope

**YELLOW ROLL (Intubation essentials)**

Laryngoscopes – handles x3  
Blades: Miller 0, 1, Mac 1, 2, 3.  
Magills forceps  
Suction: Paediatric and adult yankaur,  
Flexible size 6, 8, 10.  
Elastoplast, white tape  
ETT fixation straps

Scissors  
HME – adult and paediatric  
ETCO2 – adult and paediatric  
Bronchoscopy swivel connector  
Catheter mount  
KY gel  
Scalpel

**'Neonate' - <4months, (<5kg)**

Facemask: Round masks: size 0, 1, 2.  
Anatomical shape size 1.  
Guedel: 000, 00.  
LMA: Size 1.  
ETT: Uncuffed 2.5, 3, 3.5, 4.  
Microcuffed 3, 3.5.  
Stylet: Size 2.

**Infant – 4months to 1yr (5-10kg)**

Facemask: Size 1  
Guedel: 00, 0.  
LMA: Size 1, 1.5  
ETT: Uncuffed 3.4, 4, 4.5.  
Microcuffed 3, 3.5, 4.  
Stylet: Size 2.

**LOWER FRONT POUCH**

Defib pads <10kg  
10-25kg

**VENOUS ACCESS POUCH**

Yellow cannulae x2  
Blue cannulae x2  
Pink cannulae x2  
Alco-wipes  
Cannula dressings x2  
Abboaths (A-lines) x2  
5ml syringe x2.

**Preschool – 1-5years (10-20kg)**

Facemask: Size 1, 2  
Guedel: 0, 1.  
LMA: Size 2, 2.5  
ETT: Microcuffed 3.5, 4, 4.5, 5.  
Stylet: Size 2, 4.

**Big kids >10 years (>30kg)**

Facemask: Size 3, 4.  
Guedel: 1, 2  
LMA: 3, 4.  
ETT: 5, 5.5, 6, 6.5, 7.

**LOOSE IN THE BAG**

Paediatric bougie x2

This document is stored on network DCC1>GRH  
Emergency kit - please amend if any kit is changed.

## AFTER (LEFT)

Photo 2. New bag with clear and easy to access layout: weight-based pouches



## References

1. Van Zwanenberg G. A consensus to determine the ideal critical care transfer bag Journal of Intensive Care Society 0(0) 1–9 2016 DOI: 10.1177/1751143716658912
2. Bromiley M. Have you ever made a mistake? Royal College of Anaesthetists Bulletin 2008; 48: 2442-5.
3. Fioratou E, Flin R and Glavin R. No simple fix for fixation errors: cognitive processes and their clinical applications. Anaesthesia 2010; 65: 61-69

Complications and delays in airway management due to unfamiliarity with emergency equipment should be avoidable. The re-organisation of the Critical Care paediatric 'grab bag' appears to be a relatively simple but effective intervention in improving safety of providing airway management for a paediatric patient.