

Category : **Respiratory: airway management/CPAP**

A85 - Development of an interactive intubation checklist for use on mobile devices

JM Dudziak¹ ; **PB Sherren**²

¹*Guy's & St Thomas' NHS Foundation Trust, Anaesthetics, London, United Kingdom,* ²*Guy's & St Thomas' NHS Foundation Trust, Critical Care Unit, London, United Kingdom*

Introduction:

Tracheal intubation in Critical Care is well recognised as a high-risk procedure, meticulous preparation and effective team working are determinants of good outcome. Checklists aid structured preparation and execution of procedures. We aimed to adapt our unit intubation checklist [1] for use on mobile devices to ensure a consistent safety standard for intubations both on the unit and elsewhere in the hospital.

Methods:

The unit intubation checklist covers different aspects of pre-procedure preparation, each aspect was assigned one page. Using Affinity Publisher (Serif Europe Ltd., West Bridgford, United Kingdom), the different components of each aspect were laid out and supplemented by pictograms, arrows and formatting to aid visual reception. Interactive elements were then added using Adobe Acrobat X Pro (Adobe Inc., San Jose, California, US). We sought feedback from multiple clinicians at different training levels and improved the checklist iteratively in response to their input.

Results:

The resulting PDF document contains eight pages in a 16:9 format suitable for most modern smartphones. Viewing is intended in the Acrobat app (Adobe Inc., San Jose, California, US), with one-page display and sideways swiping allowing a view of each page in its entirety and quick progress through the checklist. Each page uses a characteristic background colour, with large page numbers in the upper right corner. Seven of the pages contain interactive elements - checkboxes to aid completion of all checklist steps and radio buttons on the airway assessment page to aid identification of high-risk features, and a link to the published guideline on the title page.

Conclusion:

This interactive mobile checklist has been described as useful and easily adopted in clinical practice from initial feedback. After rolling out this checklist broadly, the impact on checklist uptake and rate of clinical incidents will be the subject of subsequent work.

References:

[1] Sherren PB et al. Scand J Trauma Resusc Emerg Med 22, 41 (2014).

Image :

NHS
Guy's and St Thomas'
NHS Foundation Trust

Critical Care Intubation Checklist

adapted from
Sherrin PB, Tricklebank S & Glover G
Scand J Trauma Resusc Emerg Med 2014

1/7 AIRWAY ASSESSMENT

Laryngoscopy
easy if unsure difficult
 ~ Call senior help early!
 ~ Difficult airway trolley at bed space?

Facemask Ventilation
easy if unsure difficult
 ~ Second person available?

Cricothyroidotomy
easy if unsure difficult
 ~ Cricothyroid membrane palpated?
 ~ Consider marking membrane!
 ~ ENT/Surgeon required?

2/7 PATIENT POSITION

Optimised for:
 ~ Pre-oxygenation
 ~ sitting or ramped? 
 ~ Laryngoscopy
 ~ ear to sternal notch?



FLEXTENSION

3/7 PHYSIOLOGY OPTIMISATION

NG feed & insulin stopped?
 NG tube aspirated?

Pre-oxygenation
 ~ HFNC or NIV if SpO₂ < 97%
 ~ agitated/not tolerating?
 ~ consider sedation

Have you optimised:
 ~ intravascular volume?
 ~ consider fluid bolus
 ~ SVR?
 ~ consider vasopressors
 ~ cardiac output?
 ~ consider inotropes

4/7 MONITORING

ECG?


SpO₂?


Working arterial line?


NIBP?
 ~ cycling every 3 mins
 ~ on contralateral arm to fluids

Waveform etCO₂?
 ~ connected to Mapleson C


5/7 EQUIPMENT

Kit Dump sheet prepared?


Yankauer under pillow?

PPE:
 ~ goggles
 ~ mask


Consider enhanced PPE for appropriate cases

6/7 DRUGS

Working IV access × 2

Intubation drugs
 Δ anticipate hypotension
 ~ dose cautiously

Paralysis (rocuronium)
 ~ 1.2–1.5 mg/kg preferred

Emergency drugs
 ~ atropine/adrenaline
 ~ ephedrine/metaraminol
 ~ fluids

Post-intubation
 ~ sedation/analgesia
 ~ vasopressor/inotropes

7/7 TEAM BRIEF

Delegate roles
 ~ 1st airway operator
 ~ 2nd airway operator
 ~ airway assistant
 ~ drug administrator
 ~ runner
 ~ leader (can perform additional role)

Plans A–D verbalised?

Questions  Concerns  addressed?

All done?
Perform Intubation!

Head positioning illustration © 2017 Nick Chirries,
 "Flexion" attributed to Tom Clark
 Mobile PDF Adaptation and Illustration © 2017 Javid Durrani
 works best in Adobe Acrobat App in high-contrast view (always) w/sep

Overview of 8-page interactive PDF document optimised for smartphone displays. Each page has a characteristic background colour and a large page number in the upper right corner. Most pages contain interactive elements to ensure no aspects of the checklist are missed.