BET 2: SHOULD REAL RESUSCITATIONISTS USE AIRWAY CHECKLISTS?

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ABSTRACT
A short cut review was carried out to establish whether the use of preprocedural checklists prior to intubation of critically ill patients outside a theatre environment can reduce the incidence of adverse events. Four directly relevant papers were found using the reported search strategy and presented the best evidence to answer the
clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these papers are tabulated. It is concluded that preprocedural checklists may reduce adverse events in these patients, but that the evidence level is low and further matched cohort studies are needed to prove effectiveness.

**CLINICAL SCENARIO**

Your trauma patient rolls through the door. The blood pressure looks good and there does not appear to be any chest injuries. Disappointed, you put your new thoracotomy shears back in your pocket. You brighten up when you realise the patient has sustained a serious head injury and will need intubating. As you brandish your pre-filled syringes of ketamine and rocuronium towards the patient the anaesthetist on the trauma team starts reading from the rapid checklist shears back in your pocket. You experience an unfamil-

**REQUIREMENT**

In [critically ill patients requiring endotracheal intubation] does [the use of a preprocedural checklist] reduce [the incidence of adverse events].

**SEARCH STRATEGY**

A literature search of EMBASE, MEDLINE and CINAHL was conducted via NHS Evidence. Reference lists of relevant articles were also hand searched.
OUTCOME
184 articles were found and abstracts reviewed for inclusion. Four articles were directly relevant to the three-part question and are presented in table 2.

COMMENTS
Rapid sequence intubation in the critically ill patient is a high-risk procedure. Adverse events are common and can precipitate underlying injury, delay effective care and occasionally result in catastrophic patient outcome (Cook et al 2011, Fogg et al 2012).6

The use of checklists to reduce error rates in acute settings has been the subject of much debate. The WHO surgical checklist has been widely adopted as standard procedure in UK operating theatres.7 The use of checklists for emergency situations outside of the operating theatre is more variable. In 2011, the UK Royal College of Anaesthetists carried out a national audit regarding complications of airway management in the UK (NAP4). High adverse event rates were noted within an ED/critical care setting and some of these complications were attributed to action teams with limited experience working in unfamiliar territory. As such one of the ensuing recommendations was the use of a checklist to facilitate a shared mental model and optimise the chance of first pass success. The level of evidence to directly support this recommendation is weak; most studies before or after NAP4 addressing the issue of airway checklists are observational, unmatched, before and after quality improvement measures comprising multifaceted interventions. As such they are prone to significant Hawthorne effect and confounding (Goodacre 2015).8

When recommending the use of a checklist the authors of NAP4 cite a prospective multicentre-controlled cohort study (Jaber et al 2010)9 suggesting a significant decrease in life-threatening complications after introduction of an intubation management protocol. This study assessed the effectiveness of a bundled intervention including mandatory capnography, dual operator, positive pressure preoxygenation and other features now considered to be routine elements of emergency airway management, rather than the benefit of the checklist itself. Despite the dearth of high-quality evidence airway checklists have become increasingly adopted, usually as part of local Quality Improvement initiatives designed to reduce adverse event rates. Indeed, evidence exists to support their benefit regarding information exchange, teamwork and perception of safety.10 Use of checklists is intuitive and likely to be of benefit, providing regular educational update and review within a robust governance structure.

Current evidence suggests there may be a potential reduction in adverse events with the use of preprocedural checklists, during intubation of the critically ill patient outside a theatre environment. However, this evidence is level 3 at best and should be considered hypothesis generating. Further evidence is required before airway checklists can be considered a standard of care. When recommending the use of a checklist the authors of NAP4 cite a prospective multicentre-controlled cohort study (Jaber et al 2010) suggesting a significant decrease in life-threatening complications after introduction of an intubation management protocol. This study assessed the effectiveness of a bundled intervention including mandatory capnography, dual operator, positive pressure preoxygenation and other features now considered to be routine elements of emergency airway management, rather than the benefit of the checklist itself. Despite the dearth of high-quality evidence airway checklists have become increasingly adopted, usually as part of local Quality Improvement initiatives designed to reduce adverse event rates. Indeed, evidence exists to support their benefit regarding information exchange, teamwork and perception of safety. Use of checklists is intuitive and likely to be of benefit, providing regular educational update and review within a robust governance structure.

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