A multi-disciplinary, "Difficult to Intubate" communication system in the OR/ICU setting for the immediate identification of patients at risk for extremely difficult reintubation

Rashmi N. Mueller MD[1], Kristen R. Hurst MD[2], Richard J. H. Smith MD[2] and Michael M. Todd MD[1]

Departments of Anesthesia[1] and Otolaryngology[2], The University of Iowa Hospitals and Clinics, Iowa City, IA

Introduction

Tracheal reintubation after planned extubation occurs in up to 25% of post-surgical patients.[1] In our hospital and elsewhere, **sentinel ("Cannot Intubate, Cannot Ventilate")** events have occurred during reintubation in patients known to be difficult to intubate (DI) to the team in the operating room (OR).[2] **The DI diagnosis is usually in the medical record and may be missed during hand-off to call/"Rapid Response" teams.** This may lead to lack of planning, and morbidity, mortality or a near-miss during reintubation.

We developed and implemented a communication method for the clear and rapid identification of patients who are at risk for extremely difficult reintubation and remain intubated after surgery.

Methods

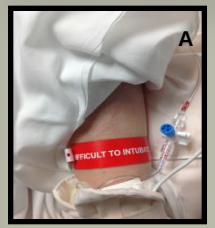
We identified 8 categories of patients likely to be extremely difficult to intubate based on anatomical or post-surgical changes and added a 9th open category based on faculty discretion (C). Patients within these categories who remain intubated at the end of surgery receive a bright red "Difficult to Intubate" wristband (A), red tape on the endotracheal tube (B), and a bedside warning sign (D). A **"Difficult-to-Intubate Red Tag" Communication Kit** containing these items was placed in every main OR and emergency airway cart. Anesthesia, Otolaryngology, ICU, surgical and nursing staff were educated about this initiative. As most extubation failures occur within 2 h of extubation,[1] we advised that planned extubation in these patients ideally occur early during the workday.

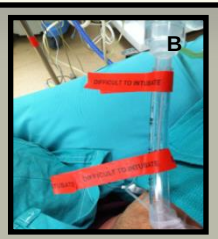
Results and Conclusion

Since inception (March 2014), this method has been used in 20 patients; 18 had one of the stated indications. Sixteen (16/18) were later safely extubated in an ICU. One patient died due to unrelated disease and another underwent a planned tracheostomy. **There were no airway mishaps in any of the "red-tagged" cases.** Two patients were "red-tagged," but not in accordance with the stated indications. We have provided further education and feedback to our team members.

The electronic medical record is being configured to display "**Difficult to Intubate" banner alerts**. The anesthesia record will designate the patient as a "red-tagged" airway. A list of in-house, red-tagged patients will be provided to teams on call for the ICU and emergency airway assistance.

This is a simple system to quickly identify extremely difficult airways in patients remaining intubated after surgery. Trainees will be alerted to have the right equipment, monitors and clinicians skilled in advanced airway management involved in reintubation attempts; nursing staff will be vigilant in preventing premature self-extubation. **Thus, critical errors and life-threatening airway catastrophes will be prevented**.

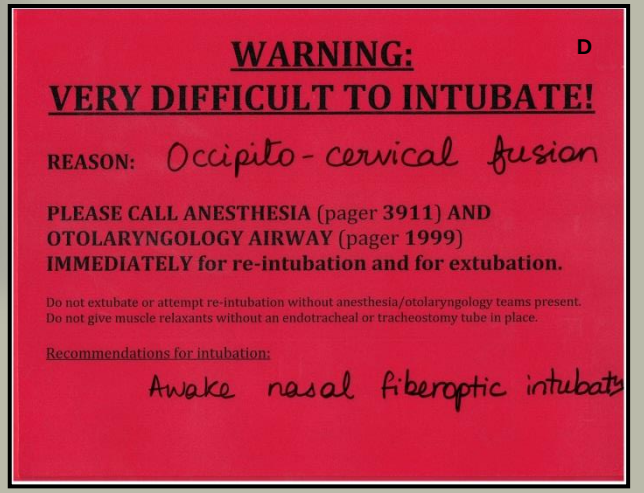




ASSIGNMENT CRITERIA C

Patients with any of the following needing postoperative intubation:

1. Occipito-cervical fusion
2. Transoral odontoid resection
3. Posterior cervical spine fusion
4. Pediatric difficult airway syndromes
5. Laryngotracheal reconstruction
6. Major head and neck lesions without a tracheostomy
7. Traumatic, difficult intubation
8. Patient with history of lost airway or emergent surgical airway
9. Select patients at the discretion of Oto and Anesthesia faculty



References: 1. Cavallone LF et al: Anesth Analg 2013;116:368-83 2. Kadis J et al: APSF Newsletter: Fall 2012;32-32