Problem Definition

Airway management is at the core of emergent patient care. Emergent intubations in the Emergency Department (ED) at Thomas Jefferson University Hospital (TJUH) have been noted by staff to be variable and not standardized. Staff have also described that equipment tends to be difficult to locate during intubations.

There is no objective data to confirm these claims. Furthermore, there is no bundle in place to guide emergent intubations in the ED.

Our team sought immediate actions to improve ED airway processes.

Aims For Improvement

1. Describe staff experiences surrounding emergent intubations in the ED at TJUH (Needs Assessment 1).
2. Identify latent threats in TJUH ED processes surrounding emergent intubations (Needs Assessment 2).
3. Convene a task force focused on improving ED airway processes.
4. Create an airway bundle for immediate use at TJUH (i.e., workflow, preparation, team roles, troubleshooting).

We consulted evidence-based, best practices and met with local and regional airway champions to develop a checklist (see Figure 1).

Proposed Intervention

A Standardized Process for ED Intubations

A checklist bundle was developed to improve organization and preparation surrounding intubations (Figure 1). This checklist was inspired by a literature review, including the NEAR study database1 and the EMCrit Intubation Checklist.2 The bundle is intuitive, easy to use, and consists of discrete sections (i.e., preparation; algorithmic approach; time-out; post intubation management)

Standardized Equipment in the ED

The bundle helped identify critical airway equipment that must be readily available for teams. The bundle will help guide the development of comprehensive and standardized airway carts, stocked with items featured in the bundle. Carts will be located on the A-side, B-side, and resuscitation bay of the ED. The ED Airway Task Force included representation from Central Stocking/Supply to ensure carts are appropriately stocked longitudinally.

Needs Assessment Strategy #1

A Google survey was administered to all ED staff: faculty/resident physicians; nurses; mid-levels; technicians. Participants rated their satisfaction with available airway equipment; access to equipment; team organization; and interest in an airway bundle that would streamline emergent airway processes (Figure 2)

Needs Assessment Strategy #2

We performed a FMEA to uncover latent threats through in situ simulation, as well as real patient intubations. A in situ simulation of an emergent airway situation was performed in the ED using an airway mannequin, with all appropriate staff at the bedside.

Following a qualitative analysis of FMEA and post-simulation debriefing transcriptions, the following threats were identified:

No consensus on when to move patients to the resuscitation bay; no clear team roles; delays in securing critical equipment; lack of fully-stocked supply carts; no protocol for airway pre-assessment; no pre-intubation EPIC order set; time-outs rarely performed; no checklist for setup, medications, or equipment; no pre-identification of back-up providers; post-intubation management is rarely defined early.

Longitudinal Assessment Strategy

1) Enrollment in the National Emergency Airway Registry (NEAR) to measure measure parameters for TJUH ED intubations (i.e., success rate, airway characteristics, hemodynamics, adverse events, and disposition).
2) Following training (see below), laminated, brochure-like checklists will be globally stocked in the ED and on top of all airway carts. The expectation is that these will be used and completed by a team member. These will be included in the patient chart. A follow-up survey and focus groups with staff will be conducted to capture process changes.
3) Two-months into bundle implementation, several follow-up FMEAs will be conducted.

Implementation Plan

1) Several ED Advanced Airway CQI Task Force meetings have been scheduled. This group will serve as an advisory board should any issues/concerns arise during implementation.
2) In the next several weeks, the intervention will be presented to the ED Steering Committee for stakeholder support.
3) A module will be created on Articulate Rise Software. This module will cover the basics of the bundle. All clinical staff (i.e., residents, faculty, nurses) will be asked to complete the module.
4) In-person training sessions will be conducted, with several table tops at local meetings (i.e., faculty meeting, resident conference).
5) ED representatives will meet with members of the Institutional Airway Meeting to discuss collaborative next steps.