15 Comparison of Intubation Barrier Devices in a Simulated Airway Task Trainer

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Learning Objectives: We aim to demonstrate a preferred device to be used for physician protection during the intubation of Covid-19 patients using a simulated model. In addition, we wish to demonstrate which device causes the least interference with the intubation process.

Background: With the advent of the SARS-CoV2 (Covid-19) pandemic, there have been significant concerns regarding transmission of the disease to Healthcare Professionals, particularly during intubation procedures. Several forms of barrier protection aimed at decreasing the spread of aerosolized droplets were developed during the early onset of the pandemic.

Objectives: Using a simulated airway task trainer, we examined the impact that 3 separate barrier devices had on intubation time and success using both direct and video laryngoscopy. We hypothesized that lighter and more simplistic devices would be preferred and would provide faster intubations.

Methods: The subjects of this study comprise of attending level emergency physicians and anesthesiologists employed at a community hospital who were asked to fill out surveys regarding their experience with the barrier devices from previous simulated intubations. In addition, 10 attending level emergency physicians participated in a Just in Time training session in which they performed both direct and video laryngoscopies on an airway task trainer using each of the devices. An independent observer recorded the time it took for each physician to set up the device and to successfully intubate the task trainer.

Results: The main results of the survey are depicted in Figure 1a-d. 97 percent of respondents indicated a preference for video laryngoscopy for Covid-19 positive patients. In general, this cohort preferred a plain clear plastic drape or clear plastic drape with PVC cube for direct laryngoscopy and video laryngoscopy set ups (Figure 2a-d). Use of these two devices resulted in significantly faster times to intubation when compared with the fiberglass box.

Conclusion: In general, a simple, plastic sheet was the preferred barrier device using video laryngoscopy. Although set up times were faster using the fiberglass box, intubation times were significantly faster using the plastic drape or PVC frame.

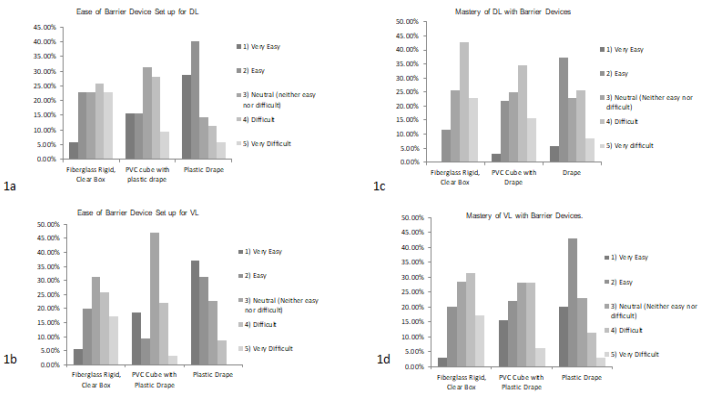

Figure 1.

Figure 2.

Barrier Device Type	Plastic Drape		PVC Cube with Plastic Drape		Fiberglass Box	
	Direct	Indirect	Direct	Indirect	Direct	Indirect
Average Time (s)						
Device setup	32	30	42	39	10	9
1st pass intubation	46	39	46	41	57	52
BVM	49	42	48	42	63	65

16 Continuing Professional Development: A Needs Assessment for Emergency Medicine Faculty

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Background: To date, there has been one needs assessment which appraised both the clinical and non-clinical domains of continuing professional development (CPD) for EM faculty, and none in the United States (US).

Objectives: The primary goal of this study is to assess the perceived needs and desirability of various CPD activities for EM faculty within both the clinical and non-clinical spheres of EM.

Methods: This was a prospective, exploratory study using survey methodology. A previously validated survey with minor modifications was distributed anonymously online to 67 EM faculty members at a university tertiary referral center. Participants were questioned about the desirability of CPD in the following areas: procedures, clinical emergency topics, diagnostics, management, teaching, and research skills. The survey incorporated a mixed-methods design with both Likert-scale response options as well as some qualitative, open-ended questions. The survey was available for completion from 11th December 2019 – 15th January 2020.

Results: The survey was completed by 47 faculty members (70% response rate). Of the procedural skills, more than 90% of respondents desired CPD in ventilator use, advanced airways, and regional anesthesia. Of the clinical EM topics, greater than 90% of attendings were interested in toxicological emergencies and cardiac emergencies. Of the diagnostic skills, more than 85% of respondents desired to learn more about CT interpretation. Of the listed management skills, more than 80% of faculty members desired more CPD in giving feedback and appearing in court. In the domain of teaching and

research skills, more than 85% desired CPD on teaching for simulation instruction.

Conclusions: This is the first study in the US to assess the needs of both the clinical and non-clinical domains of CPD for EM faculty. The identified preferential topics from the needs assessment will be utilized to develop a targeted CPD curriculum for EM faculty.

17 Defining the Clinical and Procedural Opportunities Available to Residents During Rural Rotations

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Learning Objectives: The purpose of this research study was to objectively measure the clinical experiences that residents are exposed to during rural rotations, in order to more accurately assess their educational value.

Background: Many emergency medicine (EM) residency programs include clinical rotations in rural emergency departments ("rural rotations") as part of their curriculum. These rotations are designed to expose residents to clinical scenarios which are less frequently encountered in tertiary centers. Additionally, they teach residents how to manage "routine" clinical scenarios in lower-resource settings, often without consulting services and less learner pressure. To date, these proposed benefits have not been empirically studied.

Objective: The aim of this study is to determine the rate at which residents were exposed to key clinical or procedural experiences ("CPEs") while on rural rotations.

Methods: We conducted a retrospective chart review of all patient encounters involving EM residents at two rural hospitals in the upper Midwest from 7/1/2019 to 6/30/2020. An expert panel predetermined a list of 21 CPEs to be assessed. A total of 1377 encounters were reviewed. The frequency of each CPE was calculated and expressed as the number of CPEs expected for each 12-hour shift along with 95% confidence intervals.

Results: Of the 1377 patient encounters over a total of 1770 resident clinical hours, the most frequently encountered CPEs were: Ambulance Necessity Documentation (1.12 experiences per shift), Critical Care 0.6 per shift), Laceration Repair (0.4 per shift) and Splint/Cast Application (0.18 per shift).

Conclusion: Rural EM rotations provide residents exposure to a variety of valuable educational experiences, and for many, after just a few shifts. Future research will compare this data to a tertiary care center to determine whether rural rotations grant superior exposure to any CPEs. Additionally, we plan to expand this study to investigate other proposed benefits of these rotations, including independent decision making and resource allocation.

Table 1.

CPE	Experiences/Shift	95% CI
Ambulance Necessity	1.12	0.96-1.28
Critical Care	0.60	0.48-0.72
Laceration Repair	0.41	0.31-0.51
Splint/Cast Application	0.18	0.11-0.25
Trauma Activation	0.14	0.06-0.20
Psych Evaluation	0.10	0.05-0.15
Stroke Diagnosis	0.08	0.04-0.13
Incision & Drainage	0.08	0.04-0.13
Fracture Reduction	0.05	0.01-0.08
Procedural Sedation	0.05	0.01-0.08
Intubation	0.03	0-0.05
STEMI Diagnosis	0.02	0-0.04
Arthrocentesis	0.02	0-0.04
Cardiac Arrest Diagnosis	0.01	0-0.03
Complex Lac. Repair	0.01	0-0.03
Nailbed Repair	0.01	0-0.03
Lumbar Puncture	0.01	0-0.02
Vaginal Delivery	0	
Rule Out Labor	0	
Chest Tube	0	
Lateral Canthotomy	0	

18 Development of a Resident Lead Critical Care Equipment Checklist and Consistency of Equipment Readiness

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Learning Objectives: This study investigates if the initiation of a resident lead interdisciplinary equipment checklist improves acute critical care equipment readiness in the Emergency Department. Furthermore, this study seeks to identify what barriers exist to consistent survey completion.

Background: Interdisciplinary efforts ensuring clinical readiness in Emergency Departments (ED) can lead to improved patient care. Studies report that equipment checklists can improve procedural and patient outcomes.

Objectives: To evaluate the impact of an resident-led equipment checklist on ED critical care readiness, and to identify barriers to survey completion.

Methods: A multidisciplinary team of ED/critical care attendings, residents and nursing staff developed an acute care equipment checklist via REDCap©. One week of control data was collected by investigators prior