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Redesigning Video Laryngoscope Equipment to Improve Preparedness for 1st Pass Intubation Attempts

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Authors

Kachman, Marika
Olson, Nathan

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is a method in SIM that pauses a scenario for immediate feedback and then rewinds to allow for repetitive practice. It has been shown to improve technical and non-technical skills (NTS), but direct comparisons of RCDP with traditional SIM techniques are lacking.

Objectives: The purpose of this investigation is to compare the efficacy of RCDP versus traditional SIM methods in team trauma resuscitations. We hypothesize that teams who participate in RCDP will display stronger NTS than teams who participate in a traditional SIM session.

Methods: The participants were convenience cohorts of PGY1-4 EM residents who were divided into twelve teams of five. During December 2021 and January 2022, six teams had a trauma scenario followed by a traditional post-scenario debrief and six teams had RCDP of a similar trauma scenario. Participants were surveyed on their perceptions of the SIM experience. Four days later, all teams participated in a video-recorded trauma scenario. NTS displayed by the teams were measured by two independent blinded raters using the non-technical skills scale for trauma (T-NOTECHS).

Results: Sixty residents participated in the SIM sessions and 57 completed the survey. The performance of only four of the RCDP teams and three of the traditional SIM teams were analyzed due to video technical errors. Interrater reliability was good with an intraclass correlation coefficient of 0.69 (95%CI 0.39-0.84). The T-NOTECHS scores had no statistically significant difference between the two types of SIM ($p < 0.18$), however the resident survey responses did favor RCDP over traditional SIM.

Conclusions: There was no significant difference in NTS displayed by teams who underwent RCDP versus traditional SIM. An underpowered sample size likely contributed to these results. Based on resident perceptions, the RCDP had more positive feedback than the traditional SIM approach.

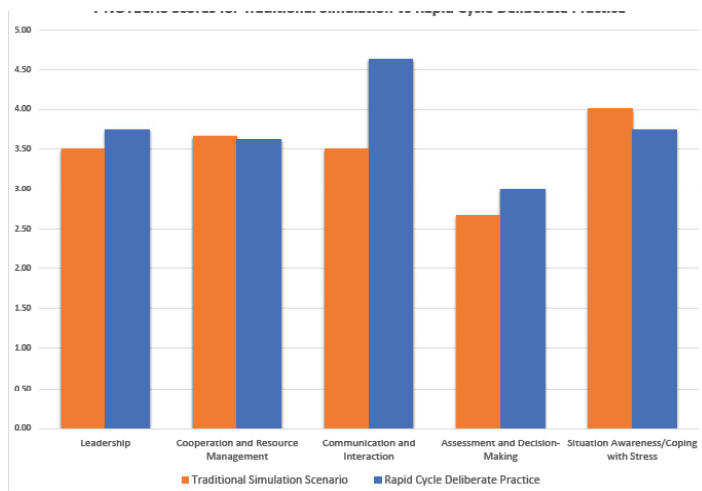


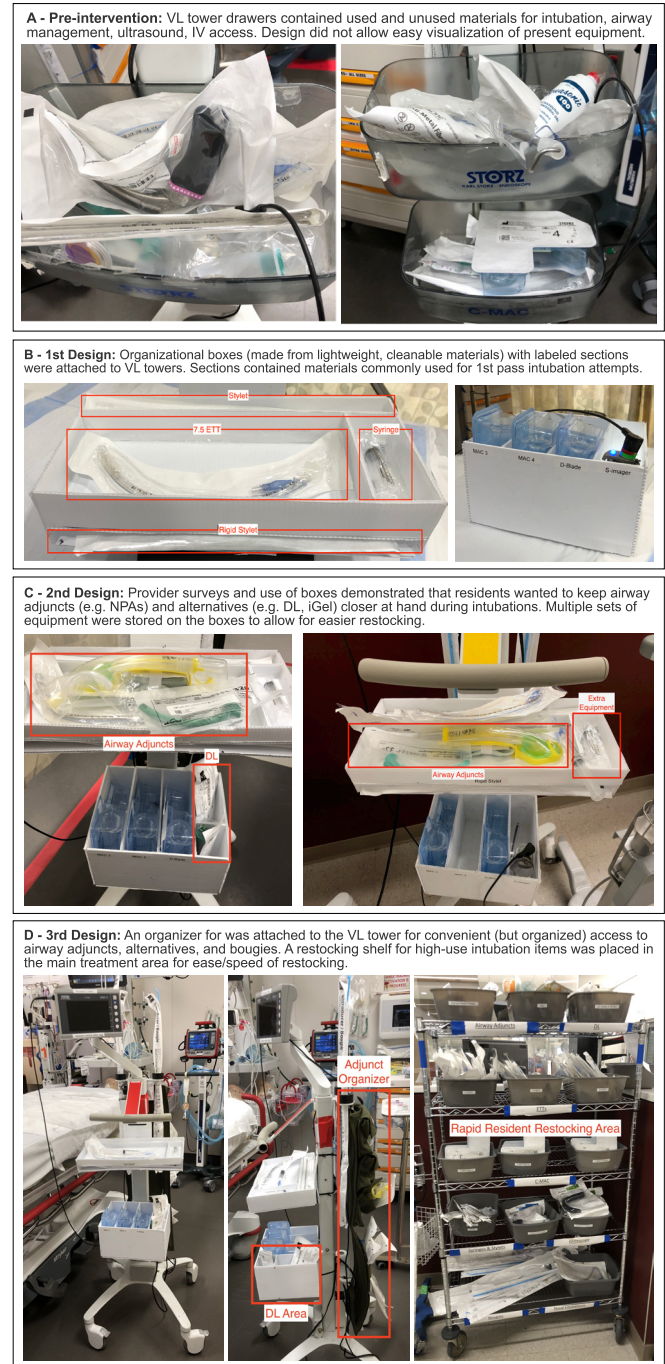
Figure. T-NOTECHS scores for traditional simulation versus rapid cycle deliberate practice.

47 Redesigning Video Laryngoscope Equipment to Improve Preparedness for 1st Pass Intubation Attempts

Marika Kachman, Nathan Olson

Background: Intubation remains a common and critical procedure practiced by EM providers (Stevenson et al. 2007). Several studies have examined how human

Figure 1. Stages of VL tower airway box design.



factors affect clinical performance in airway emergencies and how thoughtful organization of airway carts can mitigate such factors (Chrimes et al. 2018, Bjurström et al. 2019). However, most of this research has focused on anesthesiologists intubating in ORs (Jones et al. 2018, Schnittker et al. 2018), a scenario that differs substantially from the emergent, unplanned intubations occurring in ERs (Stevenson et al. 2007).

Objectives: We aimed to develop a novel point-of-care airway organizational tool that integrates onto existing Video Laryngoscopy (VL) towers and improves resident readiness for first-pass intubation attempts.

Methods: This study was conducted at a Level 1 trauma center and university tertiary referral center. Prior to the study, VL towers were used as the principle intubating solution at our facility, but there was a large variety and disorganization of tools available on these towers (Figure 1A). Using principles of choice architecture (Redelmeier et al. 2021) we designed a compact, standardized solution that fits comfortably at the head of the bed and can be moved easily from room to room as intubation needs arise (Figure 1B). EM residents were surveyed throughout the process via convenience sampling. In response, the design then went through multiple revisions so that the solution would meet the needs of multiple situations and user preferences (Figure 1C, 1D).

Results: Residents reported an increased feeling of preparedness for first pass intubation attempts (pre = 2.94 (1.43), post = 4.33 (0.97), $p = 0.0024$).

Conclusions: Our VL airway tower solution combines established best practices for airway equipment design with the needs and preferences of EM providers in a high-intubation volume ER. Further work is needed to determine if a similar solution is generalizable to other settings.

48 Self-Assessment of Preparedness: A Two Year Evaluation of Incoming Emergency Medicine Interns in the Era of Covid-19

Lorie Piccoli, Ryan Briskie, Kathleen Williams, Amber Billet, Brent Becker, Barbie Stahlman, Katelyn Mann

Background: COVID-19 resulted in modification, limitation or cancellation of rotations that affected the clinical experience of fourth-year medical students (MS4).

Objective: The purpose of this study was to compare the preparedness of incoming emergency medicine interns (EM-1) from the classes of 2021 and 2022 in light of changes to clinical rotations incurred by COVID-19.

Methods: We conducted a prospective, survey assessment of MS4 from 2021 and 2022 matriculating into 7 distinct EM residency programs. The anonymous survey collected data on demographics, rotations, procedures, and subjective comfort levels for specific clinical scenarios. Each respondent was

assigned a procedural index score (PS) and a clinical comfort index score (CCS), defined as the sums of procedure counts and quantitative Likert values for clinical scenarios, respectively. PS, CCS, number of rotations and COVID-19-related limitations were compared between 2021 and 2022 using the Mann-Whitney U test ($p=0.05$).

Results: Completed surveys were returned by 63 and 56 respondents from 2021 and 2022, respectively. The class of 2022 reported significantly more EM rotations (median 3 [IQR 2-3] vs 2 [IQR 2-2], $p<0.001$) and fewer virtual rotations (0 [IQR 0-2] vs 3 [IQR 1-4], $p<0.001$). Based on Likert scale responses, the class of 2022 reported significantly less suspension of rotations (2 [IQR 1-2] vs 2 [IQR 2-3], $p<0.001$) and less clinical limitations due to COVID-19 (2 [IQR 1-2.75] vs 2 [IQR 2-3], $p<0.001$). Despite an improved, in-person clinical experience there was no significant change in 2022 PS (36.5 [IQR 32-41.75] vs 35 [IQR 30-39], $p=0.283$) or CCS (31 [IQR 28-34] vs 30 [IQR 27-32] $p=0.581$).

Conclusion: Based on self-reported data, the MS4 class of 2022 participated in more EM rotations, fewer virtual rotations and clinical rotations less impacted by COVID-19; however, this did not result in greater procedural exposure or clinical comfort levels entering their EM-1 residency year.

49 Shuffling the Deck - Factors at Play in Applicant Program Ranking

Joshua Timpe, Kathleen Williams, Alisa Hayes, Sam Corbo, Tom Yang, Ephy Love, Jason Reminick

Background: Geography significantly affects a medical student's choice when selecting a residency program. Other factors and sources of information are used. Nearly half of applicants alter their program applications as a result of Doximity rankings (DR). Alternatively, the AAAEM Benchmarking Survey & Acuity Index (AI), compare academic institutions objectively. Given EM trainees' desires to care for the sickest patients, we theorize that AI rankings should correlate with applicant competitiveness. Previous work has utilized subjective assessment of these factors, there are no studies utilizing objective data to determine how these influence applicants.

Objectives: We aimed to determine which factors correlate best with residency application preference: Geography, DR or AI. First, we hypothesize that geography continues to play a major role in application to residency. Second, we hypothesize the AI will correlate with applicant competitiveness.

Methods: We analyzed 2021 EM match outcome data from Thalamus ($n=3158$ applicants, 63 programs) using GLM regression of applicant-program pairs to study the relative contribution of variables including standardized USMLE scores, AOA status, US News and World Report medical school ranking and geographic relation. Correlations of applicant competitiveness with DR and AI are compared.

Results: As hypothesized, geography plays a significant