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Impact of a Paired Student-Resident Rotation Schedule on Medical Student Education and Impression of Residency Programs

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Authors

Mansour, Ibrahim
Dyer, Sean
Chhabra, Neeraj

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to the highest IRR, achieving good consistency. IRR for any single or grouped non-faculty source of MSF was poor.

Conclusions: Using the QSAT, this single site cohort suggests that faculty must be included in MSF. The lower IRR in this cohort compared to our prior may be based on the case being peds in nature, the sim in-situ, or both. Self-evaluation appears to be of limited value in MSF.

Table 1. Mean QSAT Scores by Rater.

QSAT Variable	Self (n=35)	Fixed Attending (n=35)	Dyad Attending (n=35)	Peer (n=34 ^b)	Fixed Nurse (n=33 ^c)	Random Nurse (n=34 ^d)
Primary Assessment <i>mean ± SD</i>	4.2 ± 0.6	4.4 ± 0.7	4.4 ± 0.7	4.8 ± 0.4	4.5 ± 0.8	4.7 ± 0.5
Diagnostic Actions <i>mean ± SD</i>	4.0 ± 0.7	4.0 ± 0.8	4.3 ± 0.7	4.4 ± 0.6	4.2 ± 0.9	4.3 ± 0.7
Therapeutic Actions <i>mean ± SD</i>	4.3 ± 0.7	4.2 ± 0.8	4.5 ± 0.8	4.8 ± 0.5	4.2 ± 0.9	4.5 ± 0.6
Communication <i>mean ± SD</i>	4.3 ± 0.7	4.2 ± 0.8	4.6 ± 0.6	4.7 ± 0.5	4.4 ± 0.7	4.4 ± 0.7
Overall Assessment <i>mean ± SD</i>	4.0 ± 0.6 ^a	4.4 ± 0.6	4.2 ± 0.5	4.7 ± 0.5	4.4 ± 0.7	4.4 ± 0.6
QSAT Total <i>mean ± SD</i>	20.7 ± 2.6 ^a	21.2 ± 2.5	22.3 ± 1.9	23.4 ± 1.9	21.7 ± 3.1	22.4 ± 2.4

^aOne self-rater did not answer Overall Assessment question, QSAT Total unable to be calculated for simulation, n=34.
^bOne simulation is missing data from a peer-rater, n=34.
^cTwo simulations are missing data from the fixed nurse rater, n=33.
^dOne simulation is missing data from the random nurse raters, n=34.

Table 2. Intraclass Correlation Coefficients (ICC) and 95% CI for Inter-Rater Reliability of Mean Total QSAT Score.

ICC Type	ICC 1	ICC 2	ICC 3	ICC 4	ICC 5	ICC 6
Inter-rater Consistency	0.570 (0.279-0.771)	0.429 (0.027-0.698)	0.557 (0.245-0.765)	0.538 (0.213-0.756)	0.608 (0.332-0.792)	0.411 (-0.028-0.693)
Inter-rater Absolute Agreement	0.531 (0.244-0.742)	0.377 (0.017-0.651)	0.538 (0.232-0.751)	0.488 (0.173-0.718)	0.579 (0.303-0.772)	0.364 (-0.027-0.650)

ICC 1: ICC for all raters.
 ICC 2: ICC with fixed nurse raters removed.
 ICC 3: ICC with peer raters removed.
 ICC 4: ICC coefficient with random nurse raters removed.
 ICC 5: ICC with self-raters removed.
 ICC 6: ICC with all attending raters removed.

Educational Soundbites Abstracts

1 Clinical Event Debriefing Curriculum to Empower Residents to Resolve Patient Safety Issues in Emergency Medicine

Janairo M, Cardell A, Lamberta M, Elahi N, Koch N, Aghera A / SUNY Downstate, Maimonides Medical Center, Osceola Regional Medical Center, University of Vermont Medical Center

Background: EM ACGME program requirements stipulate that residents “actively participate in patient safety systems and contribute to a culture of safety,” while programs should provide “formal educational activities that promote patient safety-related goals.” They state feedback and experiential learning are “essential to developing true competence.”

Learning Objective: To actively engage residents in an experiential process to analyze and correct systems factors uncovered through real time Clinical Event Debriefing (CED).

Curricular Design: During their Administrative Rotation, senior residents participate in a 2 hour CED workshop led by Simulation Faculty to provide a structured framework to analyze team performance and clinical systems with interprofessional staff. The first hour focuses interactive discussions of case studies in team performance and systems based error models and the second hour is designed to allow residents to practice a scripted CED format on videos of simulated events. Strategies to elicit proposed solutions to identified active and latent safety issues are stressed. Residents are tasked to perform 4 CEDs during their rotation, the first being directly supervised by the workshop facilitator. Aggregated issues and solutions were formally presented to operational leadership to codify a QI plan, which residents were tasked to help implement. Formative and summative feedback was provided by Simulation Faculty, and the Administrative Rotation director.

Impact/Effectiveness: Over a 2 year period, a total of 83 CEDs were led by residents. Examples of identified issues included inadequate communication, equipment failure, and deficiencies in protocols. Residents identified 124 issues and helped resolve 102 of them. Consistent with the ACGME mandate, CED provides a meaningful experiential platform for residents to promote a culture of safety by facilitating open dialogue amongst team members, reporting back to administration with systems issues, and taking an active role in resolving patient safety vulnerabilities.

2 Impact of a Paired Student-Resident Rotation Schedule on Medical Student Education and Impression of Residency Programs

Mansour I, Dyer S, Chhabra N / Cook County Health and Hospital Systems

Background: For many students, their ED rotation is their first exposure to emergency medicine and their first opportunity to evaluate a program as a fit for residency. Traditionally, shifts are scheduled with different residents and attendings and students receive little continuity in their education and are often unable to develop relationships for accurate evaluation.

Educational Objectives: We evaluated two different scheduling modalities- student-resident paired shifts vs unpaired shifts - and their effects on student education, ability to evaluate a residency program, and ability to showcase knowledge and skills. We sought to evaluate two different scheduling modalities- student-resident paired shifts vs unpaired shifts - and their effects on medical student education, ability to evaluate a residency program, and ability to showcase knowledge and skills.

Curriculum Design: For four months, all fourth year medical students (M4’s) rotating through our ED spent two weeks in each format. During unpaired shifts, students were assigned shifts irrespective of any resident or attending schedule. During paired shifts, they worked with the same PGY-3 or 4

each shift. Students worked 7 unpaired shifts and 6 paired shifts, alternating which format took place first. Students anonymously completed a survey of likert scale questions and one free response area comparing the modalities and their impact on the quality of teaching, overall educational experience, ability to evaluate the program and the ability of the program to evaluate them.

Impact and Effectiveness: 48 M4's completed the survey with 66% of respondents feeling they were better able to evaluate us as a residency program through the paired format. This format improved educational experience, direct teaching time, fostered an environment in which students were comfortable asking questions and the perception that the program was able to better evaluate them as applicants. There was no significant difference in teaching time by attendings. Unexpectedly, while students overall preferred the paired format, many stated that the combination of the two schedules provided the best balance between maximizing education and getting to know the entire program.

Table 1.

	"More" or "much more" with resident schedule	No difference	"More" or "much more" with unpaired schedule
Which schedule format allowed you to receive more direct teaching time?	31/48 (64.6%)	13/48 (27.1%)	4/48 (8.3%)
Which schedule format allowed you to maximize your educational experience during the rotation?	33/48 (68.8%)	11/48 (22.9%)	4/48 (8.3%)
In which schedule format where you more comfortable asking questions about patient care and medical knowledge?	35/48 (72.9%)	12/48 (25.0%)	1/48 (2.1%)
Which schedule format allowed you to demonstrate your knowledge of emergency medicine better?	25/48 (52.1%)	20/48 (41.7%)	3/48 (6.3%)
Which schedule format allowed for more direct teaching time from attending physicians?	7/48 (14.6%)	32/48 (66.7%)	9/48 (18.8%)
Which schedule format gave you a better ability to learn about and evaluate the residency program?	32/48 (66.7%)	13/48 (27.1%)	3/48 (6.3%)
Which schedule format do you feel allowed the program to get to know you better as an applicant?	32/48 (66.7%)	11/48 (22.9%)	5/48 (10.4%)

3 Innovations in Airway Education: 3D Printed Neonatal and Pediatric Needle Cricothyrotomy Trainers

Hampton Z, Davis A, Kalnow D / OhioHealth Doctors Hospital

Introduction/Background: Pediatric needle cricothyrotomy is a rarely performed, yet high stakes procedure that is expected to be within the skill set of a training ED physician. Prior studies have shown benefit with low cost, low fidelity trainers, but there is scant amount of information

discussing the production of a high fidelity trainer that remains at low cost. To bridge that gap we created a trainer that can be easily incorporated into simulation and hands-on training.

Learning Objective: The objective was to create a low cost, high fidelity pediatric needle cricothyrotomy trainer that increases the resident's ability to prepare and perform this difficult procedure.

Curricular Design: We used a .STL file from The Airway App, manipulating the design with Blender, a 3-D modeling program and Slic3r, to prepare it for 3D printing, creating scaled models at 50%, 33% and 25% of the original adult cricothyroid trainer (Image 1). A Pursa MK3 3D printer was then used to produce the scaled models.

Our goal was to create an evidence-based neonatal cricothyroid model in order to practice needle cricothyrotomy. Once printed, these trainers were used for resident simulation. SimSkin was placed over the trainers and residents performed the procedure with angiocatheters, syringes, and endotracheal tubes. All participants completed a survey after the simulation.

Impact/Effectiveness: Participants completed a post-simulation assessment survey in which comfortability was measured on a 1-5 scale, with 5 being completely comfortable in performing the procedure. Average pre-simulation and post-simulation scores were calculated and statistical analysis was completed using a single tail paired T-test. Average pre-simulation score was 1.87 and average post-simulation score was 3.57, for a median change of 2 (p<0.05). 96% of participants felt that the simulation was realistic and 100% of participants would recommend it for residents or attendings in the future (Table 1). Our data confirms the efficacy of this low-cost, high fidelity trainer in resident simulation.



Image 1.

Table 1.

	Participants	Comfort Pre Sim (1-5)	Comfort Post Sim (1-5)	Change	Was it realistic?	Is it valuable for other residents/attendings?
Totals	23	43	82	39		
Mean		1.87	3.57	1.70	96%	100%
Median				2		
Paired T-test (1 tail)				0.000000002		