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Rural Emergency Department Simulation: Resource Limited, Multipart Case Well Received by Residents

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#### **Authors**

Hensley, Kjerstin  
Neumann, Joshua  
Hang, Bophal

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lamp use and CFB removal techniques. A simulation model was constructed using a slit lamp, Styrofoam ball, hard-boiled egg, and pencil-lead shavings to simulate embedded corneal foreign bodies. During a structured resident conference session, participants performed CFB removal procedures on the egg-based model under supervision and completed post-simulation surveys. Confidence levels and Likert scale responses were analyzed using paired t-tests in Microsoft Excel.

**Results:** The simulation led to statistically significant improvements in resident procedural confidence. Mean confidence scores for performing CFB removal increased from 2.38 to 4.76 ( $p < 0.001$ ). Confidence using a needle during CFB removal increased from 1.70 to 4.83 ( $p < 0.001$ ). PGY1 residents demonstrated the largest relative improvement, though significant improvements were observed across all training levels, suggesting broad applicability.

**Impact/Effectiveness:** Hard-boiled egg simulations significantly improved residents' confidence in CFB removal. This low-cost, accessible model proved practical for procedural education across all PGY levels. Future studies should verify clinical effectiveness and validate performance outcomes.

## 45 Social Determinants of Health Workshop: Utilizing Simulation and Gamification to Increase Social Determinants of Health Education

*Amber Billet*

**Introduction/Background:** There is increasing need to educate Emergency Medicine (EM) residents regarding Social Determinants of Health (SDoH). ACGME requirements aside, residents need preparation to serve the unique patients in their community.

### Educational Objectives:

1. Identify and understand the impact of SDoH inequity.
2. Identify the role of community health workers and how they can optimize patient care.
3. Build empathy for those impacted by SDoH factors.

**Curricular Design:** EM residents participated in a 5 hour workshop. Residents completed a pre-survey prior to a lecture introducing SDoH and objectives. Learners then participated in (4) attending-facilitated mini simulations consisting of 4-6 mixed PGY-level residents per group. Learners rotated through the role of patient, physician, confederate and observer in each of the four simulations which included: incarceration, religion/age, language and racism (Table 1). Each simulation comprised a 15 minute scenario, 8 minute debrief, and 2 minute transition. Learners subsequently rejoined for two brief lectures on community resources and transgender care, then modeled social roles and factors within a board game framework ("The Last Straw" or "Our World"). Residents and attendings completed a post-survey and

feedback survey, respectively.

**Impact/Effectiveness:** A total of 21 residents and 6 attendings participated in the workshop, with 95% and 100% agreeing/strongly agreeing that the activity was a valuable use of conference time, respectively. Comparing pre- and post-survey resident responses, 33% vs 71% ( $p=0.01$ ) agreed/strongly agreed that the ED is an appropriate venue to connect patients with community resources, 29% vs 100% ( $p<0.01$ ) agreed/strongly agreed that they had received specific training on how to identify and intervene on SDoH and 33% vs 86% ( $p<0.01$ ) agreed/strongly agreed that they felt confident in their knowledge of community resources and ability to connect them to patients.

| Case #      | 1                               | 2                                | 3                              | 4                                |
|-------------|---------------------------------|----------------------------------|--------------------------------|----------------------------------|
| Scenario    | Incarceration                   | Religion & Age                   | Language                       | Racism                           |
| SDoH Domain | Environment Social Context      | Social Context Healthcare Access | Education Access Poverty       | Social Context Healthcare Access |
| Roles       | Patient (M), Physician, Officer | Patient (E), Physician, Parent   | Patient (F), Physician, Parent | Patient (M), Physician           |
| Set Up      | Patient Bed 3 chairs            | Patient Bed 3 chairs             | Patient Bed 2 chairs           | Patient Bed 3 chairs             |

## 46 Rural Emergency Department Simulation: Resource Limited, Multipart Case Well Received by Residents

*Kjerstin Hensley, Joshua Neumann, Bophal Hang*

**Introduction:** Critical Access Hospitals face staffing shortages as most EM graduates pursue urban positions. Current simulation curricula emphasize high-resource, tertiary environments, leaving a gap in training residents to manage complex, time-sensitive emergencies with limited resources. This innovation introduces a high-fidelity simulation targeting the operational and clinical challenges of a single provider in a rural ED.

**Educational Objectives:** Prioritize and manage simultaneous high-acuity emergencies with minimal staff and resources; demonstrate effective clinical management of rural-relevant emergencies; execute system-based tasks, such as inter-facility transfer and resource allocation; and maintain professionalism and communication with limited nursing support and distressed families.

**Curricular Design:** This curriculum utilizes a three-part, single provider, high-fidelity simulation for senior EM residents in a resource limited rural ED. The three concurrent cases included a critically ill patient with a peritonsillar abscess requiring potential airway management and transfer, a patient with postpartum hemorrhage, and a patient necessitating immediate lateral canthotomy. The scenario required rapid task switching, delegation, and resource allocation. Residents completed a post-simulation survey for feedback, and performance was evaluated using a customized milestones tool and structured debrief (Supplement 3).

**Impact / Effectiveness:** The simulation has been

implemented for the last two years and well received. The milestones tool provided objective data for focused feedback on rural specific scenarios and task switching competencies. Post-simulation surveys assessing the usefulness, relevance, and execution used a 1–4 scale (4 being highly satisfied),

| NAME:                                                                            |                                                                                   | DATE:                                                                                                                                      |                                                                     |               |               |  |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------|---------------|--|
| Milestones Simulation: Rural Emergency Medicine MultiSIM – Peritonsillar Abscess |                                                                                   |                                                                                                                                            |                                                                     |               |               |  |
| Milestone                                                                        |                                                                                   | Action                                                                                                                                     | Clear Evidence                                                      | Some Evidence | Not Completed |  |
| PC1                                                                              | 1                                                                                 | Places patient on cardiac monitor and continuous pulse ox                                                                                  |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Immediately addresses worsening airway protection and provides supplemental oxygen                                                         |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Readdresses airway protection with supplemental oxygen and determines futility                                                             |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Identify respiratory failure and promptly secures airway with cricothyrotomy                                                               |                                                                     |               |               |  |
| PC2                                                                              | 1                                                                                 | Obtains basic history and physical exam                                                                                                    |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Obtains information regarding past medical/surgical history and allergies                                                                  |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Addresses pertinent clinical exam features for PTA                                                                                         |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Focuses on airway examination given patient's primary complaints and concern for impending airway                                          |                                                                     |               |               |  |
| PC3                                                                              | 4                                                                                 | Asks for further information within EMR                                                                                                    |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Understands need to obtain imaging of neck                                                                                                 |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Obtains the correct diagnostic imaging and CBC, BMP, strep mono                                                                            |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Delays the diagnostic test following airway failure                                                                                        |                                                                     |               |               |  |
| PC4                                                                              | 4                                                                                 | Appropriately interprets CT results following securing airway                                                                              |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Orders ABG and CXR following intubation                                                                                                    |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Provides patient with differential of concerns, can be prompted                                                                            |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Appropriately identify patient as sick                                                                                                     |                                                                     |               |               |  |
| PC5                                                                              | 3                                                                                 | Narrows differential via clinical assessment                                                                                               |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Considers new diagnosis after ventilator difficulties when nurses asks why he is not oxygenating well despite intubation                   |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Asks about allergies to medications                                                                                                        |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Treatment with antibiotics                                                                                                                 |                                                                     |               |               |  |
| PC6                                                                              | 3                                                                                 | Adjunctive measures with steroids                                                                                                          |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Orders appropriate sedation medications following intubation                                                                               |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Addresses airway concerns                                                                                                                  |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Provides supplemental oxygenation                                                                                                          |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Early transfer decision prior to airway compromise                                                                                         |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Securing of airway                                                                                                                         |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Completion of transfer and airway management following intubation                                                                          |                                                                     |               |               |  |
|                                                                                  | PC7                                                                               | 1                                                                                                                                          | Basic airway management skills                                      |               |               |  |
| 2                                                                                |                                                                                   | Appropriately gathers supplies for cricothyrotomy and procedural medications                                                               |                                                                     |               |               |  |
| 2                                                                                |                                                                                   | Identifies landmarks for cricothyrotomy                                                                                                    |                                                                     |               |               |  |
| 3                                                                                |                                                                                   | Post procedure imaging and airway securing                                                                                                 |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Post procedure sedation                                                                                                                    |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Ventilator management after airway has been secured (Increases PEEP after difficulty with oxygenation)                                     |                                                                     |               |               |  |
|                                                                                  | Milestones Simulation: Rural Emergency Medicine MultiSIM – Postpartum Hemorrhage  |                                                                                                                                            |                                                                     |               |               |  |
|                                                                                  | PC1                                                                               | 1                                                                                                                                          | Patient is immediately placed on monitors                           |               |               |  |
| 2                                                                                |                                                                                   | Address imminent delivery and needs to deliver baby                                                                                        |                                                                     |               |               |  |
| 3                                                                                |                                                                                   | Identifies risk of destabilization of patient following delivery                                                                           |                                                                     |               |               |  |
| 4                                                                                |                                                                                   | Intervenes in a timely manner with medical management                                                                                      |                                                                     |               |               |  |
| PC2                                                                              | 4                                                                                 | Performs timely tamponade of bleeding                                                                                                      |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Obtains abbreviated history and physical exam                                                                                              |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Obtains appropriate GPA history, prior delivery history                                                                                    |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Ascertains GBS status and Rh status                                                                                                        |                                                                     |               |               |  |
| PC3                                                                              | 4                                                                                 | Reviews EMR information to ascertain patient's baseline hemoglobin                                                                         |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Understands need to obtain labs post delivery                                                                                              |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Obtains CBC, BMP, Rh factor                                                                                                                |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Appropriate interpretation of hemoglobin and Rh                                                                                            |                                                                     |               |               |  |
| PC4                                                                              | 4                                                                                 | Administers rapid transfusion and Rhogam                                                                                                   |                                                                     |               |               |  |
|                                                                                  |                                                                                   | Discusses differential of postpartum hemorrhage with patient                                                                               |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Identify patient as at risk of decompensation                                                                                              |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Narrows down differential by examination                                                                                                   |                                                                     |               |               |  |
| PC5                                                                              | 4                                                                                 | Frequent reevaluation of patient hemodynamics after various interventions                                                                  |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Address postpartum hemorrhage with physical examination                                                                                    |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Administer oxytocin                                                                                                                        |                                                                     |               |               |  |
|                                                                                  |                                                                                   |                                                                                                                                            |                                                                     |               |               |  |
| PC6                                                                              | 1                                                                                 | Prepare appropriate preparation for delivery                                                                                               |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Administer penicillin given GBS status                                                                                                     |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Perform appropriate steps of delivery                                                                                                      |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Perform post-delivery assessment of infant                                                                                                 |                                                                     |               |               |  |
| PC7                                                                              | 4                                                                                 | Address nuchal cord and assess for shoulder dystocia                                                                                       |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Supportive warming methods and nasal bulb suction                                                                                          |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Address need for uterine tamponade after medical management                                                                                |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Order transfusion to supplement management                                                                                                 |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Place uterine tamponade device                                                                                                             |                                                                     |               |               |  |
|                                                                                  | Milestones Simulation: Rural Emergency Medicine MultiSIM – Retrobulbar Hemorrhage |                                                                                                                                            |                                                                     |               |               |  |
|                                                                                  | PC1                                                                               | 1                                                                                                                                          | Obtains focused history                                             |               |               |  |
|                                                                                  |                                                                                   | 2                                                                                                                                          | Performs appropriate physical exam, completely exposing the patient |               |               |  |
| 3                                                                                |                                                                                   | Performs thorough ocular exam (Pressures, visual acuity, assessment for ruptured globe)                                                    |                                                                     |               |               |  |
| 3                                                                                |                                                                                   | Identifies need for emergent management of orbit                                                                                           |                                                                     |               |               |  |
| PC2                                                                              | 4                                                                                 | Timely discussion with patient regarding lateral canthotomy                                                                                |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Diagnosis not delayed by imaging                                                                                                           |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Rapidly obtains medical supplies for lateral canthotomy                                                                                    |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Administers appropriate medication support (amiodolol, lidocaine)                                                                          |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Verbalizes the appropriate steps for performing a lateral canthotomy and checks pressure                                                   |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Administers appropriate post management with steroids, acetazolamide, timolol, etc.                                                        |                                                                     |               |               |  |
|                                                                                  | Milestones Simulation: Rural Emergency Medicine MultiSIM – Overall                |                                                                                                                                            |                                                                     |               |               |  |
|                                                                                  | PROF1                                                                             | 1                                                                                                                                          | Honest and genuine approach                                         |               |               |  |
| 2                                                                                |                                                                                   | Sensitive and respectful regarding patient beliefs/delays in presentation                                                                  |                                                                     |               |               |  |
| PROF2                                                                            | 1                                                                                 | Arrives on time and appropriately dressed                                                                                                  |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Establishes rapport with patient                                                                                                           |                                                                     |               |               |  |
| TCS1                                                                             | 1                                                                                 | Listens and does not ask repetitive questions                                                                                              |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Elicits why patient in EC                                                                                                                  |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Effectively communicates needs for various procedures with patients                                                                        |                                                                     |               |               |  |
|                                                                                  | 1                                                                                 | Respectful with staff and consultants                                                                                                      |                                                                     |               |               |  |
| CSO2                                                                             | 2                                                                                 | Integrates staff concerns into their assessment                                                                                            |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Clearly and concisely addresses reason for consultation                                                                                    |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Remains composed and used appropriate communication strategies despite multiple disruptions                                                |                                                                     |               |               |  |
|                                                                                  | SBP1                                                                              | 1                                                                                                                                          | Demonstrates knowledge of coordination of care                      |               |               |  |
| 2                                                                                |                                                                                   | Integrates use of interprofessional team in routine settings                                                                               |                                                                     |               |               |  |
| 3                                                                                |                                                                                   | In complex clinical situations, effectively assesses needs for patient transfer to secondary facility                                      |                                                                     |               |               |  |
| 4                                                                                |                                                                                   | Makes appropriate rationale regarding order in which patients will require transfer to other facility                                      |                                                                     |               |               |  |
| Task Switching                                                                   | 1                                                                                 | Remains focused upon task at hand                                                                                                          |                                                                     |               |               |  |
|                                                                                  | 2                                                                                 | Can multitask between few tasks, integrating levels of active requirements, with some obstacles that affect care, requiring redirection    |                                                                     |               |               |  |
|                                                                                  | 3                                                                                 | Multitasks effectively between multiple patients, requiring some prompting to have nurse check on other patient while performing procedure |                                                                     |               |               |  |
|                                                                                  | 4                                                                                 | Multitasks effectively without prompting, effectively managing multiple patients safely at the                                             |                                                                     |               |               |  |

the mean score in all domains were consistently above 3, most often 4. This replicable model provides a scalable framework for preparing EM residents nationwide to function independently in rural and critical access settings.

## 47 A Novel Medical Student-Intern Mentorship Program in an Emergency Medicine Sub-Internship

Jack Borucki, Nicole Dubosh, Taylor Brown, Jennifer Kaminsky, Anne Grossestreuer

**Background:** Most students applying to EM residencies complete sub-internships to gain exposure to residency programs and obtain a standardized letter of recommendation. Visiting students are under significant stress with pressure to perform in a new environment often without pre-existing support systems. Effective strategies to mitigate this are lacking in EM.

**Objectives:** To implement a medical student-intern mentorship program with the goal of improving the overall experience for visiting medical students in EM.

**Design:** We developed and implemented a near-peer mentorship program in our 4-week EM sub-internship in June 2025. All medical students enrolled in the sub-internship were paired with an EM intern mentor volunteer who was also rotating in our ED that month. For the July 2025 cohort, second-year resident mentors were used given interns just began residency. Mentor pairs were connected via email and students were instructed to contact their mentor. Due to the unique shift structure of the ED, we designed the interactions to be mentor/mentee initiated rather than scheduled. At the end of each rotation, anonymous surveys were distributed to participants to assess how the program was used, impact on student experience, and degree of burdensomeness to mentors.

**Impact/Effectiveness:** To date, 22 medical student-intern pairs have participated in the program. 93% of participants completed surveys. 21 (95%) students interacted with their mentor in-person at work and 2 (9%) interacted with their mentor outside of work. 20 students (90%) indicated it made their experience much better or slightly better. No students reported a negative impact. 16 students (73%) thought their intern mentor was more approachable than attendings. Higher student ratings of mentor approachability were correlated to more positive impact of the mentorship program on overall rotation experience ( $p=0.004$ ). All resident mentors (100%) felt neutral, disagreed, or strongly disagreed that being a mentor was a significant time burden. In summary, this novel medical student-intern mentorship program positively impacted the experience of medical students without burdening residents. In the future, we plan to ensure mentors are mindful of the correlation with approachability and encourage residents to reach out to more passive students.