

Background

- Nursing students have limited clinical opportunities to manage emergencies which require specific clinical skills, critical decision making, and effective team dynamics.¹
- Our needs assessment identified gaps in student knowledge of emergency roles and responsibilities, and a perceived disconnect between didactic and clinical courses.

Purpose

- To bridge these gaps, we developed and implemented a 1-day, 4-clock hour emergency management simulation-based clinical experience (EM Sim) for our pre-licensure graduate nursing program’s complex health alterations across the lifespan clinical course.

Methods

Design

- Our faculty team includes 2 Certified Healthcare Simulation Educators who are also Basic Life Support (BLS)/Advanced Cardiac Life Support/Pediatric Advanced Life Support Instructors.
- We designed the EM Sim to align with clinical course objectives, activity learning objectives, didactic course content, and INACSL Standards of Best Practice: Simulation.^{SM2-3}

Setting

- Accredited simulation center within an urban academic medical center and university in the Midwest.

Participants

- Students are in their 5th term of a 6-term pre-licensure graduate (MSN) nursing program. Total cohort size 72-80 students per term.
- Students are required to maintain BLS Healthcare Provider status during the entire nursing program.

Procedures

- Faculty facilitators received formal internal and external simulation training.
- In addition to the 4-clock hour EM Sim, 5th term students complete a 24-clock hour simulation series and a 140-clock hour traditional inpatient clinical in both adult and pediatric acute and critical-care settings.
- Trained clinical faculty facilitate groups of 12 students.
- All simulation activities include pre-briefing and debriefing using PEARLS or Modified Plus-Delta.

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Methods

Curriculum

- Students are assigned to review the BLS protocols prior to the EM Sim.
- Four scenarios using high-fidelity mannequin and 2-3 standardized participants (SP)
 - Laerdal SimMan® or CAE METIman® and SP (faculty members in roles of prescribing providers and patient’s spouse)
- A 4-student team completes one 15-minute independent case as registered nurses while remaining 8 students watch from debriefing room via audio/video feed. All students participate in 30-40 minute facilitated debriefing after each case.

Case 1: Witnessed arrest (Sinus Tachycardia with Premature Ventricular Complexes and ST-Segment Elevation leading to Ventricular Tachycardia; Myocardial Infarction (MI))

- Key actions: assessing chest pain, rhythm identification, initiating MI protocol, calling for help, initiating effective BLS, defibrillation, administering medications, assisting with intubation, transfer to cardiac catheterization suite
- Debrief topics: code roles and responsibilities, closed-loop communication, effective BLS, review of airway management, medications, and equipment
- Didactic course content: cardiogenic shock, arrhythmia interpretation, vasopressors, intubation

Case 2: Unwitnessed arrest (Ventricular Fibrillation; MI)

- Key actions: calling for help, initiating effective BLS, rhythm identification, defibrillation, administering medications, assisting with intubation, transfer to cardiac catheterization suite
- Debrief topics: more in-depth discussions of code roles and responsibilities, closed-loop communication, team dynamics, safety
- Didactic course content: cardiogenic shock, arrhythmia interpretation, vasopressors, intubation

Case 3: Unwitnessed arrest (Asystole; End-stage heart failure)

- Key actions: calling for help, initiating effective BLS, rhythm identification, administering medications, assisting with intubation, transcutaneous pacing, considering reversible causes, team dynamics, terminating resuscitation attempt, contacting family (phone)
- Debrief topics: outcomes of resuscitation, delivering bad news, post-mortem care, self-care
- Didactic course content: arrhythmia interpretation, vasopressors, intubation, end-of-life, delivering bad news (using SPIKES principles)

Case 4: Witnessed arrest (Pulseless Electrical Activity; Hypovolemia/Hypokalemia)

- Key actions: calling for help, initiating effective BLS, rhythm identification, administering medications, assisting with intubation, considering reversible causes, facilitating family presence during resuscitation (FPDR), transfer to intensive care unit
- Debrief topics: FPDR
- Didactic course content: hypovolemic shock, arrhythmia interpretation, vasopressors, intubation, delivering bad news (using SPIKES principles)

Methods

Analysis

- Students evaluate the EM Sim using the standard simulation center evaluation tool (M-DASH©) and the university end-of-term course evaluation.

Results

Outcomes

- From January 2017-April 2020, 480 students completed the EM Sim.
- Formal and anecdotal student and faculty feedback has been positive.
 - Nearly all students rated the activity, learning experience, and instructors as “*Extremely effective/Outstanding*” or “*Consistently effective/Very good*”.
 - “*Really put me in a space to be aware of my discomfort with being in a code situation--this was helpful and I learned a lot;*” “*Practicing compressions and using equipment;*” “*Being able to go through code situations in different roles;*” “*Working as a team, walking into a room with minimal information.*”
 - “*Since there is so much fear associated with code scenarios for students I think we could have benefited from additional and earlier practice;*” “*Let us practice code skills every term;*” “*It would have been wonderful to do more than one this past term.*”

Cost

- Cost for the EM Sim per learner is approximately \$26, the fee paid to the simulation center for use of facilities, equipment/supplies, and staff.

Conclusion and Implications for Practice

- This simulation-based clinical experience provides pre-licensure graduate nursing students a significant opportunity to synthesize course content at the end of term and apply emergency management knowledge in a safe clinical environment; it also requires demonstration of BLS and key code roles.
- The EM Sim provides pre-licensure students a synthesis of didactic content covered throughout the nursing program, and a foundation for their subsequent clinical immersion course and entry into nursing practice.
- Future development includes use of a professional SP as the spouse and including other student professionals. Including more robust pre-work and individual student evaluation would enable us to provide BLS renewal during this experience. There may be potential benefits to include additional emergency recognition/management activities earlier in the nursing program.

References

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- INACSL Standards Committee. (2016). INACSL standards of best practice: SimulationSM Facilitation. *Clinical Simulation in Nursing*, 12(S), S16-S20.
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