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DESIGNING & DEPLOYING INNOVATIVE REMOTE MULTI-PATIENT SIMULATIONS

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Learning Outcomes

Upon completion of this activity, participants will:

1. Describe the design for two successful remote multi-patient simulations.
2. Discuss innovative adaptations and combinations of multiple technologies used to deliver remote multi-patient simulation-based education activities.
3. Identify opportunities to apply remote multi-patient simulation strategies.

Multi-patient Multi-disciplinary

Needs Assessment

Evaluate	Evaluate clinical care and ensure patient safety with the use of quality improvement science.
Integrate	Integrate theory, practice, and research to advance nursing care for a group of patients.
Supervise	Supervise procedures and processes with safety and competence.
Demonstrate	Demonstrate professional behavior in all clinical activities.
Design	Design an evidence-based intervention at the unit level using information technology and research methods.
Develop	Develop a personal plan for lifelong learning and continued professional development in nursing.

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Multi-patient Multi-disciplinary

Needs Assessment

Apply	Apply leadership and management theories in the provision of high-quality nursing care, healthcare team coordination, and the oversight and accountability for care delivery at the micro-system level.
Promote	Promote health work environments using collaborative, collegial approaches to communication, problem solving, conflict resolution, and innovative approaches.
Apply	Apply leadership skills through collaboration and consultation with other health professionals in the design, coordination, and evaluation of patient care.

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Multi-patient Multi-disciplinary

Innovation:
Multidisciplinary Planning committee

Formed a multidisciplinary planning committee
* MEPN Faculty
* Simulation Team members
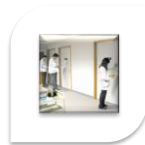* Medical Doctors
* Doctors of Nursing Practice

Multi-Patient Multi-disciplinary

BRIEF　　　SIMULATION　　　DEBRIEF

Multi-patient Multi-disciplinary

Description

Leadership students in their fourth level were provided the opportunity to manage the care of four patients on a virtual medical-surgical telemetry unit using the nursing process. The students in groups of 1-2 assessed the patient, identified problems, determined a plan of action (including contacting the provider regarding change in patient status, clarifying orders, and laboratory values), implemented the plan of action and evaluated outcomes.

Goals
- Manage the care of 4 patients on a telemetry unit via a "telehealth" platform
    - Zoom-security features, waiting rooms and breakrooms
- Provide a succinct, relevant and timely SBAR to a healthcare provider
- Provide safe and effective nursing care

Multi-patient Multi-disciplinary

Design Features

- Created 4 virtual patients
- Designed and clarified roles:
    - Zoom Master
    - Certified Nursing Assistant
    - Standardized Participant
    - Charge Nurse
    - Debrief Faculty

- Online Validation and Norming session for all roles
- Evaluation tools for 360 feedback

Multi-patient Multi-disciplinary

Innovative Design Features

Remote:
- Virtual unit via breakout rooms
- Virtual patient room via breakout room
- Share screen or low-tech display of assessment data
- VoiceThread for sounds
- Students provided remote access to supporting documents via Desire to Learn (d2L) and patient Electronic Health Record (EHR Tutor)

Patients
Darrell Blue
Roberta M. Hamilton Summer MEPN Copy
Sam Smith
Susan Haggerty

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Multi-patient Multi-disciplinary

Scenario & Patients

Sam Smith-25-year-old male, s/p valve repair secondary to endocarditis, plan to d/c to rehab

Susan Haggerty-62-year-old female, s/p laparoscopic cholecystectomy with c-diff

Daryl Blue-65-year-old, male, COPD exacerbation

Roberta Hamilton-71-year-old female-CHF exacerbation
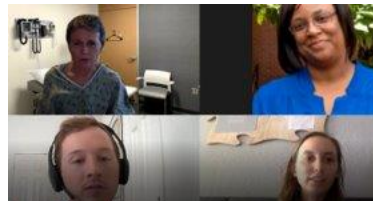
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Multi-patient Multi-disciplinary

Debrief

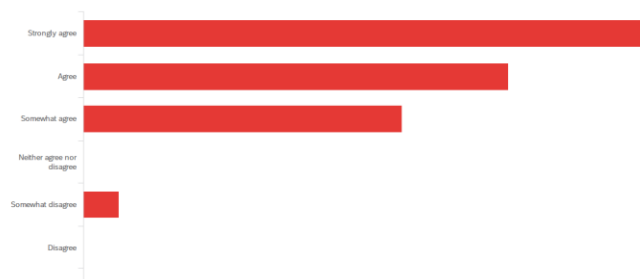- Feedback from standardized patients, healthcare providers, and instructors via JotForm.

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Multi-patient Multi-disciplinary

Student Evaluation of Learning

Q16 - The time I had spent during this virtual simulation Zoom session was relevant and worthwhile to my clinical education based on current social distancing restrictions.

Link provided to students on d2L page

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Multi-patient Multi-disciplinary

Anecdotal Evidence to Support Outcomes

"I learned how important it was to be clear, succinct, and organized when providing an SBAR to a physician. Also, how important it was to use closed loop communication and read back the orders you thought the doctor said."

"Understanding the most pertinent information in a concise delivery is essential as a nurse when contacting providers."

"Utilizing the SBAR sheet provided by the college will definitely help build my confidence as it contains all the information that I would want to relay to the physician."

"Having a patient simulation with real physicians was a great experience to practice giving reports to real physicians with real responses. From this exercise I gained the confidence to speak to a physician and learned how to adjust my SBAR to suit the needs of the physician."

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Multi-patient Multidisciplinary

Updates 2021

- Updates prompted by:
  - Reviewed written feedback
    - students
  - Obtained verbal feedback
    - Faculty
    - Standardized Participants
    - Doctor of Nursing Practice
      - Practitioners
      - Faculty
    - Simulation Team Members
  - Review of virtual simulation with with new Director of Program and Level Four Lead Team

- Updates
  - More time to assess each patient
  - More students in each group
  - Less patients
    - Susan Haggerty, Daryl Blue, Roberta Hamilton
    - Made it easier to rotate student groups
  - Training
    - 2-part training
    - Recorded training with individual Q & A session
    - For SP's collaborated with SP Liaison for two-part training
  - Debrief
    - Virtual and Written debrief
    - Included standardized patients in debrief session

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Multi-disciplinary Multi-patient Debrief

Directly after remote simulation

First 15 minutes, standardized patients offered feedback.

Discussion Board

After caring for your patient in the Multidisciplinary Simulation, please answer the prompts below. Post a response to both prompts and respond to 1 of your peers regarding their response.

1) How did you build rapport with your patient(s) in the multidisciplinary simulation? Can you share a specific example?

2) Did your SBAR to the provider go the way you expected it to go? Rate your performance and state what went well and where you will to improve your performance regarding the SBAR?

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Multi-patient: Deterioration x3

Description

Multi-Deteriorating Patient Simulation: 3 patients that each deteriorate within 1½ hours

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Multi-patient: Deterioration x3

Description

Each patient serves as an exemplar of 1 of 3 patterns of deterioration:

1) Progressive occult hypoperfusion

2) Progressive respiratory depression

3) Risk for sudden death (Carr, 2019)

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Multi-patient: Deterioration x3

Along with identifying early patterns of deterioration, students:

1. Describe underlying pathophysiology & potential complications
2. Proactively & accurately perform indicated assessments & interventions
3. Apply synthesis of multiple data sources into plan of care

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Multi-patient: Deterioration x3

Learning Objectives

5. Utilize Modified Early Warning Score (MEWS) instrument
6. Identify, prioritize & advocate for indicated interventions
7. Serve as effective member of a Rapid Response Team
8. Document accurate & legally defensible account of events

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Multi-patient: Deterioration x3

Innovative Design Features

On-site:
- 3 rapid response events in 1 ½ hours, all patients presented virtually ant the same time, preceded by pre-brief & followed by debrief (2019, 2020)
- 3 rapid response events within 3 hours; each patient presented individually & preceded by pre-brief & followed by debrief (2021)
- Student pairs serve as primary nurse for 1 of 3 patients and participate as rapid team members for other patients
- Rapid Team Lead: Faculty coach
- Charge nurse receives report and monitors patients during rapid events (2019, 2020)

Remote (in addition to on-site features):
- Virtual patient monitor
- Media – images, audio files
- Virtual rapid/code cart
- Students provided remote access to supporting documents and patient EHRs

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Multi-patient: Deterioration x3

Remote Resources Provided to Students

- Electronic Medical Records
- Rapid response orders
- Modified Early Warning Signs
- Sepsis Screening Tool
- Rapid Response Documentation Form
- Virtual Code Cart Items List

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Multi-patient: Deterioration x3

Planning & Validation

CON Simulation & ASTEC Teams

Simulation Based Activity Validation & Facilitator Planning

Role Schedule & Resource Lists

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Multi-patient: Deterioration x3

Clinical Synthesis Day

Title and Time	Resources

Rapid Response Station (100 min)	Team Roles
	Standing Orders
	Policy and Procedure
	Medications-
	    Atropine 1 mg (prefilled)
	    Amiodarone vial (150 mg/mL)
	    Amiodarone infusion 900 mg/500 mL
	    and more . . .
	Documentation

MEWS (50 min)	MEWS Review & mini-scenarios
ANA Scope of Practice	ANA Scope of Practice Scope of Practice Scenario
Multiple Deteriorating Patient Activity (100 min)	Deteriorating Patient PPT EHR for 3 patients Multiple Deteriorating patients' worksheet
Integrative Principles in leadership (50 min)	Integrative Nursing Scenario Guided reflection

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Multi-patient: Deterioration x3

Pre-brief

- Form 3 teams of **2 –4 students**
- Each team plans primary care for 1 patient
- Situation-Background-Assessment-Recommendation (SBAR) report x3 (**report given on all patients)**
- Review:

    Electronic Health Records

    Emergency Standing Orders

    Rapid Response Documentation Form

    Rapid Response/Code Cart contents

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Debrief Guide

Integrative Health Principles

Human beings are whole systems inseparable from their environments.	Human beings have the innate capacity for health and wellbeing.	Nature has healing and restorative properties that contribute to health and wellbeing.	Integrative nursing is person-centered, and relationship based.	Integrative nursing practice is informed by evidence using a full range of therapeutic modalities, from least invasive to more.	Integrative nursing focuses on the health and wellbeing of caregivers as well as those they serve.

Advocacy-Inquiry Approach

Notes: ___ min are allocated to complete group debriefing and documentation.

Phase I: Reaction, Emotional Response
Facilitator: Encourage participation and build rapport. Guide learners to express their feelings and save face, ask "How do you feel about the scenario? Use Delta-Plus process with 2 questions: 1. "What went well?" 2. "What would you do differently?"

Phase II: Debrief for Understanding
Facilitator: Assist learners to uncover thought processes and other factors that resulted in actions. Help learners articulate ways to improve performance. Employ Advocacy-Inquiry by 1. Utilizing objective observations, 2. Commenting on the observation while advocating for your position, 3. Exploring the thinking learners use to explain why they performed as they did, 4. Discover with the learners, ways to promote improvement and/or replicate positive results. Example: I heard you say _____ or I saw you do _____ when the patient _____. I am wondering what led to your decision to _____ rather than doing _____. Can you tell me about your thinking related to this situation?

Phase III: Wrap-Up
Facilitator: Invite reflection on the simulation experiences as a whole and help to solidify learning. Explore how learners feel about the simulation over-all and what learning they will take away with them to other settings: 1. "How are you feeling about the simulation now?", 2. "What made the biggest impact on you today?", 3. "What will you take with you from today's experience into your clinical practice?", 4. "Is there anything else you would like to discuss?"

Invite participants to complete Simulation Effectiveness Tool - Modified (SET-M) after completing debrief.

*Adapted from: Lisa Guirguis and Cheryl Cox. University of Alberta PharmSim Program. Framework adapted from: Rudolph J.W., Simon R., Rivard, p., Dufresne R.L., Raemer D.B. 2007. Debriefing with good judgement: Combining rigorous feedback with genuine inquiry. Anesthesiology Clinics, 25, 361-376. doi: 10.1016/j.anclin.2007.03.007

Outcomes: On-site

SET-M Results Multi-Deteriorating Patient Simulation Summer 2019				
	Pre-briefing (max=6)	Scenario (max=36)	Debrief (max=18)	Total (max=60)
Average Score (n=88)	5.2	31.9	17.1	54
Percent (n=88)	87%	88.60%	95%	90%

Multi-patient: Deterioration x3

Outcomes: On-Site Summer 2019

Student Comments:

"I felt today's sim really allowed for multiple stressful situations to be handled by the team, which we do not always witness in the clinical setting, therefore I felt it really prepared me for the harder days of the job. I appreciated being challenged and having to learn how to properly function under a high stress situation."

"I really enjoyed having my own patients to take care of on TOP of responding to rapid responses for patients I am not familiar with. I had never used a rapid response protocol before so I am glad I had the opportunity to practice that. I enjoyed that the scenario allowed us to work together with multiple patients while still focusing on care for one patient."

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Outcomes: Remote

SET-M Results Multi-Deteriorating Patient Simulation Summer 2020	Pre-briefing (max=6)	Scenario (max=36)	Debrief (max=18)	Total (max=60)
Average Score (n=54)	4.9	30.94	16.96	52.8
Percent (n=54)	82%	86%	94%	88%

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Multi-patient: Deterioration x3

Outcomes: Remote Summer 2020

Student Comments:

"I loved this SIM! It was very well thought out and I think for online learning it has been the most useful resource out of anything we've done since quarantine began. I would definitely recommend using this as a teaching format for future online courses!"

"This patient deterioration sim was more helpful to me because it gave me a picture of what my role is during rapid responses and the process of leaving my patient to be monitored by another nurse when responding to a rapid call."

"You guys did a great job in the virtual space! I learned a ton!"

Outcomes: Remote

SET-M Results Multi-Deteriorating Patient Simulation Summer 2021	Pre-briefing (max=6)	Scenario (max=36)	Debrief (max=18)	Total (max=60)
Average Score (n=64)	5	31.2	16.5	52.7
Percent (n=64)	83%	87%	92%	88%

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Multi-patient: Deterioration x3

Outcomes: Remote Summer 2021

Student Comments:

"I enjoyed learning about rapid order sets so I can be better prepared to recognize the order next time."

"I enjoyed learning about rapid response and the ability to work in a team. I have been unable to see a rapid or code in person so these simulations really help."

Multiple comments expressed a desire to complete the simulation in person (n=6)

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Zoom Master

▸ Patient Room1-Roberta Hamilton	Assign
▾ Patient Room 2-Darrell Blue	Assign
▾ Patient Room 3-Susan Haggerty	Assign
▾ Patient Room 4-Sam Smith	Assign
▾ Facilitator Lounge	Assign
▾ Nurses Station	Assign
▾ Visitors Lounge	Assign
▾ Help Desk	Assign
▸ Healthcare Provider Lounge	Assign
▾ Change Nurse	Assign

Orientation to Simulation all student groups 0830-0900

Review of charts 0900-0930 *SIM instructors, standardized patients and healthcare providers are in Zoom checking in and getting ready for session, students are reviewing charts with instructors

Rotation times	0930-0945	0946-1001	1002-1017	1018-1033	Nurses Station (charge)	Healthcare Providers	Visitors Lounge
Group 9, Student 1 Student 2	Pt. 1	Pt. 2	Pt. 3	Pt. 4	V.N.	T.G. virtual	V.S.
Group 9, Student 3 Student 4	Pt. 2	Pt. 3	Pt. 4	Pt. 1	Charge R.N. A.N.	C.H. & S.E On-call	
Group 9, Student 5 Student 6	P.t 3	Pt. 4	Pt. 1	Pt. 2	CNA B.E.		
Group 9, Student 7	Pt. 4	Pt. 1	Pt. 2	Pt. 3			
Questions	2 min total						
Nurses Station	Complete Charting						

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Low-Tech Solutions

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Virtual Rapid/Code Cart

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Virtual Rapid/Code Cart

SILC Virtual Code Cart List

On top of Cart

Defibrillator

Oxygen tank

Bag Valve Mask

Drawer 1

Adenosine 6mg/2mL

Amiodarone HCl 150mg/3mL

Atropine Sulfate 10mL

Calcium Gluconate 10% 10mL

Dobutamine 250mg/20mL

Epinephrine 1:1000/1mL

Drawer 2

Glucagon

Vasopressin 20 Units

Dextrose 50% (25 gm)

Aspirin 81mg

Nitroglycerin 50mg/250mL

Nitroglycerin 0.4mg

Drawer 4

Gloves (XS, S, M, L, XL)

Arterial Blood Gas kit

Alcohol Swabs

60mL syringe

20mL syringe

10mL syringe

5mL syringe

1mL syringe

IV start kit

IV catheters (various sizes)

Needles

2x2 gauze

Primary IV tubing

Drawer 5

Laryngoscope

Miller Blade

MAC Blade

Endotracheal tube (various sizes)

Oral-pharyngeal Airway

Nasal-pharyngeal Airway

End-tidal CO2 Detector

McGill Forceps

Oxygen Flow Meter

Nasal Cannula

Non-rebreather mask

Small Volume Nebulizer (SVN)

RAPID/CODE

Future Multi-Patient Simulations

Professional & Regulatory Guidelines

Combined Statement on Models & Simulation & COVID-19

Changes in Education Requirements for Nursing Programs During COVID-19 (NCSBN – per state)

GUIDELINES

REFERENCES

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