

Using Simulation to Teach Transitions of Care for Hospitalized Patients

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BACKGROUND & SIGNIFICANCE

- A capstone nursing course assimilates students into professional nursing roles by providing the opportunity to synthesize and integrate concepts.
- The intentional exposure of students to a patient who is transitioning across high acuity settings is supported by the National League for Nursing/Jeffries Simulation Framework.
- HPSM's are significantly effective in increasing knowledge acquisition, critical thinking and ability to identify deteriorating patients.
- HPSM's provide realistic complex assessment parameters and can respond to interventions in real time.

PURPOSE

- Teach Baccalaureate Nursing Students about safe transitions and changing priorities of care across high acuity hospital settings.
- Application of didactic knowledge and complex clinical skills from a senior level capstone course.
- Promote student learning through experiential learning in a multi-scenario simulation using a high fidelity human patient manikin.

Simulation Scenes

Scene & Setting*	Content	Supporting Information	Equipment/supplies	Student Roles (N)
I. Emergency Department (ED) arrival from primary care practitioners office	16 year old male wrestler presents to PCP with leg rash (positive for MRSA) and symptoms of sepsis. PCP sends to client to the ED	PMH Lab results: positive MRSA culture and elevated WBC Assessment parameters Provider orders: focus on implementation of sepsis bundle of care	High fidelity manikin ID band IV pump, fluid and tubing (3) Foley catheter Nasal cannula Medications: Zosyn	Nurse (2) Parent
II. Intensive Care Unit-first 24 hours	Client is transferred to the ICU setting from the ED with hemodynamic instability and respiratory insufficiency	Lab results: decreased oxygenation, dysrhythmias Assessment parameters; show low MAP Provider orders: focus on patient stabilization	High fidelity manikin Mechanical ventilator Central line Arterial line Medications: norepinephrine and propofol	Nurse (2) Parent
III. Intensive Care Unit- 48 hours later	Client stabilizes in the ICU, remains on ventilator, remains on vasopressors and sedation, indications of acute kidney injury(AKI) are present	Lab results: elevated bun and creatinine Assessment parameters: edema and decreased urine output Provider orders: address AKI	High fidelity manikin Mechanical ventilator Medication: bumetadine	Nurse (2) Parent
IV. Progressive Care Unit- 3 weeks later	Client stabilizes hemodynamically, receiving hemodialysis 3x/week, is on tube feedings, is weaning slowly from ventilator, demonstrates depression, parent has unrealistic expectations that client will return to wrestling in a few weeks	Lab results: WNL Assessment parameters: WNL Focus is ventilator weaning, addressing psychosocial status, discharge education pertaining to tube feedings, tracheostomy care, frailty, depression, mobility, interdisciplinary collaboration	High fidelity manikin Tracheostomy Mechanical ventilator	Nurse (2) Parent Nutritionist Case Manager Social Worker Respiratory Therapist

METHODS

- A four hour multi-scenario simulation was developed using a high fidelity human patient manikin (HPSM) that included:
 - Emergency department: admission – 2 hours
 - Critical Care Unit: 2-24 hours post admission
 - Critical Care Unit: 24-72 hours post admission
 - Progressive Care Unit: 3 three weeks post admission with anticipation of d/c to home soon
- The simulation provided the students opportunity to apply didactic knowledge pertaining to complex concepts of sepsis, acute respiratory distress syndrome, and acute kidney injury. Higher level clinical skills included management of an arterial line, advanced airway, mechanical ventilation, infusion titrations.
- Clinical faculty were oriented to the simulation and lead their respective clinical students through the simulation with a simulation technician.
- The Simulation Effectiveness Tool Modified (SET-M) was used to evaluate student learning with 19 items broken down into 4 subscales: pre-briefing, facilitation learning, facilitation confidence, debriefing. Students also provided subjective comments about the experience
- Faculty provided simulation feedback about the simulation experience using a survey with 6 items. The items were rated on a Likert-scale of 1=strongly disagree to 5=strongly agree. Four yes/no questions were asked, and subjective responses ascertained for what went well, what could be improved, what could have gone better with the scenario, and additional comments.

RESULTS

Fall 2018 and Winter 2019 SET-M Scores t-test Comparison

Subscales	N	Mean	SD	t	df	p
Pre-brief				-2.13	28	.042*
Fall 2018	29	2.28	.66			
Winter 2019	29	2.59	.58			
Facilitation Learning				-.56	29	.578
Fall 2018	30	2.72	.29			
Winter 2019	30	2.75	.37			
Facilitation				.344	29	.734
Confidence						
Fall 2018	30	2.72	.32			
Winter 2019	30	2.68	.40			
Debrief				-.58	29	.569
Fall 2018	30	2.78	.36			
Winter 2019	30	2.82	.06			

*p<.05

Faculty Perception Survey Questions and Scores

Faculty Survey Questions	Mean Score (1=strongly disagree, 5=strongly agree)
The simulation scenario was a useful teaching tool in meeting the objectives of the course.	3.85
The simulation was well developed, thorough and with a stable script.	3.54
The simulation scenario prebriefing materials were sufficient for student preparation and participation.	3.77
The simulation scenario script was easily facilitated with the faculty materials provided.	3.54
The faculty materials and script allowed me to be fully engaged in the simulation.	3.85
Did the simulation scenario provide a rich experience for debriefing?	3.85
	Score (1=yes; 0=no)
	Yes Frequency (percentage)
	No Frequency(percentage)
Did you read the student prebriefing materials?	11 (85%) 2 (15%)
Did you prepare for the scenario prior to the simulation?	12 (92%) 1 (8%)
Did the scenario flow as planned?	8 (80%) 2 (20%)
If so, for how long?	Range= 30 minutes – 180 minutes

Faculty Subjective Responses

What went well with the scenario?	"student progression and engagement" "first scene went well" "instructor handouts were helpful and detailed" "critical thinking and covered important etiology of sepsis"
What would improve the scenario?	"more student involvement" "unsure at this point" "have all students do med calculations, work with ventilator and have a real art line set-up and central line catheter" "objectives more specific" "have less tasks like foleys in the senior level sim and teach students about drips and titrations before the sim"
What could have gone better with the scenario?	"the final scenario" "unsure at this point" "accuracy of meds with concentrations in the alaris pumps programmed correctly" "too much was crammed into the sim" "nothing, I thought it went great overall" "timeline, more accurate dosing/clear orders" "reviewing the scenario for the most current evidence-based practice"
Additional	"reviewing the scenario for the most current evidence-based practice"

CONCLUSIONS

- Teaching transitions of care for high acuity hospitalized patients via HPSM's was successfully demonstrated.
- Simulation objectives were met, including:
 - Application of complex knowledge
 - Utilization of critical thinking and judgment
 - Practice of complex skills
 - Development of increased confidence and competence
- The innovative simulation was viewed positively by senior level undergraduate nursing students and faculty.

Future Implications

- Student learning of complex knowledge and skills can be facilitated using HFSM's
- Simulation can promote student development of critical thinking and judgment in high acuity scenarios using HFSM's
- Transitions of care in high acuity settings can be effectively taught using simulation

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