Simulation Roles and Clinical Decision Making Accuracy in an Acute Care Scenario

Krista White, PhD, RN, CCRN-K, CNE (nursing – Georgetown University & PCHS)
Kristen Zulkosky, PhD, RN, CNE (nursing – PA College of Health Sciences [PCHS])
Amanda Price, PhD (psychology – PA College of Health Sciences [PCHS])
Jean Pretz, PhD (psychology – Elizabethtown College)
Conflict of Interest - Statement

Author & Affiliation

- White – Georgetown University & PA College
- Zulkosky – PA College
- Price – PA College
- Pretz – Elizabethtown College

COI & Support

- NO conflict of interest has been identified or reported by any author related to this study or the presentation.
- NO author has received any sponsorship or financial compensation related to the study or the presentation.
Objectives for the Session

The learner will be able to:

- discuss the importance of clinical decision making within schools of nursing.
- differentiate between active and passive roles within the simulation setting.
- articulate the three phases of clinical decision making accuracy addressed in the study.
- discuss two key findings which resulted from the study.

Making quality decisions is important.
Background of Clinical Decision Making

- Cornerstone of professional nursing
- Quality patient care
- Positive patient outcomes (White, 2014)
- Clinical Decision Making (CDM) phases:
  - Cue acquisition
  - Relevancy
  - Plausible hypotheses
  - Diagnosis
  - Action

(Elstein et al., 1978)
Background of CDM (continued)

Simulation Roles

- **Active:**
  - Primary nurse
  - Education nurse
  - Medication nurse

- **Passive:**
  - Family member
  - Observers

(Theard et al., 2013)

Theoretical Framework

- **Nursing Education Simulation Framework**
  - Teacher factors
  - Student factors
  - Educational practices
  - Simulation design characteristics
  - Expected student outcomes

(Jeffries & Rogers, 2007)
Research Gap & Research Question

**Research Gap:** No studies have been conducted that compare CDM accuracy between active and passive roles within simulation.

**Research Question:** Are there differences in CDM accuracy among different roles in an acute care simulation scenario with fourth-semester ASN students?
Methods: Design

- Quantitative, mixed factorial design

- **Within subjects** factors were decision stopping point (SOB and rhythm change) and decision phase (cue acquisition, diagnosis, action)

- **Between subjects** factors were simulation roles (primary, auxiliary, family, observer)
Methods: Participants and Materials

- **Participants**
  - 120 fourth-semester students enrolled in weekday ASN program (92% female; 66% under age 30; 87% white; 68% with at least 6 months of healthcare experience)
  - Existing groups of 9-10 students participated as part of regular simulation lab day

- **Role in simulation**
  - Group members were randomly assigned to primary nurse, medication nurse, education nurse, family, or observer

- **Standardized and scripted pre-brief with instructor**
  - Pre-brief covered medications, potential complications, and shift change report
The Scenario: Post Open Heart (POD #2)

- Two distinct and intentional decision stopping points
  - **Stopping point #1**, SOB (a familiar situation)
    - Patient said, “It is getting a little hard to breathe, I cannot get a good breath.”
  - **Stopping point #2**, Rhythm change to Afib (a novel situation)
    - Patient said, “I just don’t feel right”....
    - If needed, patient prompted, “My chest feels funny” .... “I’m a little dizzy.”

- Clinical decision making questions (2 minutes to respond to all at each stopping point)
  - **Cue acquisition**: “What are you noticing about the patient right now?”
  - **Diagnosis**: “What do you think is going on right now with the patient?”
  - **Action**: “What specific action(s) should the nurse take at this time?”
Methods: Data Collection Flow

**Familiar - SOB**

- **SOB**
  - “I can’t breathe right”
- **CDM phases**
  - Pause scenario
  - Answer 3 questions
- **Resume**
  - After 2 minutes
  - Resume scenario

**Novel - AFib**

- **AFib**
  - “I just don’t feel right.”
- **CDM phases**
  - Pause scenario
  - Answer 3 questions
- **Resume**
  - After 2 minutes
  - Resume scenario
## Stopping Point #1 – Scoring Rubric

### Shortness of Breath

<table>
<thead>
<tr>
<th>Question</th>
<th>Right (1 point each)</th>
<th>Wrong (1 point each)</th>
<th>Neutral (zero)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 and 2</strong></td>
<td>HOB is flat</td>
<td>Temp 99.8</td>
<td>Lung problem</td>
</tr>
<tr>
<td>What are you observing?</td>
<td>Says he is SOB</td>
<td></td>
<td>I don’t know</td>
</tr>
<tr>
<td></td>
<td>Working to breath</td>
<td></td>
<td>Complications</td>
</tr>
<tr>
<td></td>
<td>Has no O2 on</td>
<td></td>
<td>Abnormal vital signs</td>
</tr>
<tr>
<td>What is wrong?</td>
<td>Incision pain</td>
<td>Bleeding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anxiety attack</td>
<td>Chest tube occlusion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulmonary embolus</td>
<td>Pericarditis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pleural effusion</td>
<td>Cardiac Tamponade</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pneumonia</td>
<td>Chest pain (cardiac)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is not C &amp; DB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Put HOB up</td>
<td>Treat cardiac pain – nitro</td>
<td>Call doctor</td>
</tr>
<tr>
<td>What actions to do?</td>
<td>Admin O2 (per prn order)</td>
<td>Admin cardiac meds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ask about pain – specifics</td>
<td>Obtain 12-lead EKG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Admin pain pill</td>
<td>Assess the chest tubes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Assess lung sounds</td>
<td>Check sternotomy incision</td>
<td></td>
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<tr>
<td></td>
<td>Assess VS</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Obtain pulse O2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Give “huggie” pillow</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Methods: CDM Accuracy Scoring

- Scoring conducted by two doctorally prepared certified nurse educators who were blind to the participant role
- Scale from 1 (completely incorrect or unsafe), 2 (correct but vague or missing important information), 3 (correct but missing minor information), to 4 (correct and complete)
- Due to heterogeneity of variance and violation of normality assumption, scores were recoded as incorrect (1-2) or correct (3-4).
- Intraclass correlation coefficients (Polit & Beck, 2012) ranged from .81 to .98.
Accuracy Scoring Sheet - Tally

<table>
<thead>
<tr>
<th>Student ID</th>
<th>SP1-A</th>
<th>SP1-B</th>
<th>SP1-C</th>
<th>SP2-A</th>
<th>SP2-B</th>
<th>SP2-C</th>
</tr>
</thead>
</table>

### Scoring Legend
1 = Wrong, nothing of value, unsafe
2 = Okay but too vague, too much missing
3 = Got the key element, a bit of missing information
4 = Right on, very complete

### Stopping Point #1 & #2 – Krista White

#### #1: Shortness of Breath

#### #2: Afib
Results

CDM Accuracy by Situation and Question

** Statistically significant; p < 0.01
Results

CDM Accuracy By Role: SOB Situation

Cue acquisition
- Primary nurse
- Auxiliary nurse
- Family member
- Observer

Diagnosis
- Primary nurse
- Auxiliary nurse
- Family member
- Observer

Action
- Primary nurse
- Auxiliary nurse
- Family member
- Observer
Results

CDM Accuracy By Role: AFib Situation

* p = 0.046; + p = 0.06
Implications for Nursing Education & Practice

- Large clinical groups necessitate passive as well as active roles
- **Observer role** is beneficial, especially in novel situations
  - Less scrutiny, less stress, and more ability to collaborate
- **Family member role** is less beneficial, especially in novel situations
  - Instructed to remain “in-role, may not “think like a nurse”

Consider the intent or goal of the simulation when assigning roles.
Implications for Nursing Education & Practice

- **Active roles** in simulation are:
  - more engaged with the scenario
  - more scrutiny
  - more stressful overall
  - more like real-life practice

(Kaplan et al., 2012)

Ensure students experience both active and passive roles in simulation.
Strengths & Limitations

**Strengths**
- Scenario modified slightly to include two distinct stopping points
- Congruence between in-room and out-of-room experience
- Pre-brief was scripted for clinical faculty
- Patient voice the same for ALL groups
- Script for research team for consent and data collection
- Met goal for target sample size
- Randomly assigned to roles

**Limitations**
- Exact timing of scenario pause may have varied
- Students may have answered the 3 questions too briefly
- Uneven numbers of students in different roles
Effect of Simulation Role on Clinical Decision-Making Accuracy

Kristen D. Zulkosky, PhD, RN, CNE\textsuperscript{a,*}, Krista A. White, PhD, RN, CCRN-K, CNE\textsuperscript{b}, Amanda L. Price, PhD\textsuperscript{c}, Jean E. Pretz, PhD\textsuperscript{d}

\textsuperscript{a}Department-Nursing, Pennsylvania College of Health Sciences, Lancaster, PA 17601, USA
\textsuperscript{b}Department-Nursing, Georgetown University, Washington, DC 20057, USA
\textsuperscript{c}Department-General Education, Pennsylvania College of Health Sciences, Lancaster, PA 17601, USA
\textsuperscript{d}Department-Psychology, Institution/University- Elizabethtown College, Elizabethtown, PA 17022, USA


Thank you for coming!
Any questions?

Krista White, PhD, RN, CCRN-K, CNE
krista.white@georgetown.edu
Kristen Zulkosky, PhD, RN, CNE
Amanda Price, PhD
Jean Pretz, PhD

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