Merging Education, Research, & Simulation Innovation at Intermountain Healthcare

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Disclosure Slide

**Nancy A. Bardugon & I. Marlene Summers** – employed by and partially sponsored by Intermountain Healthcare to attend 44th Biennial Convention

**Deborah Morris** – formerly employed by Intermountain Healthcare; currently employed by Blue Mountain Hospital. Partially sponsored by the Nu Nu Chapter to attend 44th Biennial Convention

None of these three presenters have commercial relationships or support that would create a Conflict of Interest.
Objectives

• Describe key events over the past decade that have resulted in rapid simulation growth, educational needs for patient safety, & evaluation of simulation facilitators throughout Intermountain Healthcare in Utah and Idaho.

• List two major patient safety issues identified through simulation.

• Identify the best person to conduct evaluations of simulation facilitators.
Creating Buy-in to Support Growth of Simulation

Nancy A Bardugon RN MSN CHSE
Intermountain Simulation Simulation Director
Objectives

- Provide history of simulation growth across large healthcare system
- Describe benefits of simulation training beyond improving staff education
- Provide examples of high profile programs marketed to increase support for simulation resources
Medical Error
Evolution of Simulation at Intermountain
Intermountain Simulation Facilitator Course
Simply providing education without ensuring quality and showing benefits and value is dangerous.
SHARE YOUR STORY
Testing Workflow
Novel Application of Simulation for Rapid Cycle Testing
Problem:

• Evidence supports that having a Rapid Response system in place to manage the deteriorating patient will help decrease the amount of Code Blue’s in a hospital system.

• Evidence does not support that having a Rapid Response System decreases mortality.
Goal of Rapid Response Simulation Project

• Bring together engaged representatives from across system
• Use simulation to rapid-cycle test/modify tools
• Refine the assessment/recording tool
• Integrate clinical IS systems to support standardization
Adult Initial Algorithm

Mental Status (AVPU) Assess Patient
- ALERT
- VERSAL
- Responsive to PAIN
- UNRESPONSIVE

Blood pressure
Pulse
Respiratory rate
Pulse Oximetry
Blood Glucose

Systolic blood pressure
Diastolic blood pressure
Pulse
Respiratory rate
Pulse Oximetry
Blood Glucose

Hypotension
Shock
Seizure
Status Epilepticus
Neurological
Vital Signs
TeleStroke
Volume
EMR Integration
HFSimEd Simulation

“Simulation is hands-on instruction & learning which is far better than being told what to do or reading what to do. You get to simulation and find out your own little habits that work against you. It was educational [...] and much appreciated.”  

HFSimEd Patient
Preliminary Results

Self-care of Heart Failure (Schfi) and Quality of Life (KCCQ)

- Positive trends are noted in self-care management, confidence and quality of life scores for patient’s attending simulation training.

Healthcare Utilization

2 readmissions within 30 days for patients attending simulation
- Readmissions for reasons other than HF.
- No HF readmissions.

2 readmissions within 30 days for patients who missed simulation.
- One with HF readmission.
“Growth is never by mere chance; it is the result of forces working together.” — James Cash Penney, founder, JC Penney
References


Simulation Revelations for Research
Deborah J. Morris, BSN, RN
It all started with a business proposal...
Then we needed to find space
“The simulation represented a real life situation I encountered. I truly believe that we are making a difference in patient safety by practicing on mannequins instead of people.”

Kylie Williams RN
Simulation began with Nurse Residency
Next, we decided to try simulation with departmental skills days
Knowledge gaps and process problems can be identified during simulation.

Airway management of the sedated patient in the GI lab became a concern after a simulation.
Nurses were relying on SPO2 monitoring to determine adequate ventilation.

End-tidal CO2 monitoring was discussed during debriefing after a simulation. Nurses were unfamiliar with technology but did have a module for it in their cardiac monitor.
A Nursing Research Grant was offered in our corporation.

Nursing Research Fellowship Award 2015

Deborah Morris

In recognition of your commitment to nursing research at Intermountain Healthcare

Bonnie Jacklin
Chief Nursing Officer
North Region

Kim Heirichsen
Vice President & Chief Nursing Officer
Intermountain Healthcare
Use of Continuous End-Tidal Carbon Dioxide Monitoring in Sedated Patients

By
Deborah Morris BSN, RN
Dani Larsen BS, RRT-NP
40 sedated patients were studied during their GI lab procedure.
Observations of GI lab Staff and Researchers:

- Procedure rooms are dimly lit and the patient is covered with a blanket. Respiratory rate and effort is very difficult to see.

- ETCO2 detector stops working if oral or gastric secretions are on it.

- Oxygen saturation can stay above 90% for several minutes with apnea, especially with oxygenation.

- Movement of the scope can mimic respiratory waveform.
Additional Findings–Patient Safety Concerns:

Nurse has too many tasks:

- Gives medications
- Monitors vital signs
- Charts in computer throughout procedure
- Assists physician, holds pressure on abdomen etc.
- Airway management

Computer charting added a physical barrier to the nurse managing the airway and is an additional distraction.
Study Conclusions:

End-tidal CO2 monitoring is a tool that can alert the nurse to apnea and hypoventilation prior to oxygen saturation dropping. In our study, it alerted the nurse 97% of the time prior to oxygen saturation dropping.

Unable to support airway adequately with current process.
Recommendations:

- Use end tidal CO2 monitoring as a standard monitoring tool on all sedated patients.

- There needs to be one trained individual who is dedicated to supporting the patients airway with no additional tasks.
North Region nurses share their research on "unlocking best practice" at the Intermountain Nursing Research Conference

More than 200 nurses, nursing students, and nursing administrators participated in this year's Nursing Research Conference at Intermountain Medical Center, Doby Education Center in Murray. “This conference provided an amazing opportunity for nurses, nursing students, and leaders in nursing to network and to learn from one another while increasing their skills and knowledge on best practices in nursing,” says Linda Hoffmann, Intermountain’s Assistant Vice President of Nursing.

Unlocking Best Practice was the theme of the conference and five healthcare organizations collaborated to provide this opportunity to attendees: Intermountain Healthcare, University of Utah College of Nursing, Sigma Theta Tau International Honor Society of Nursing, University of Utah Health, and Veterans Administration Healthcare.

Kim Klinkowski, Surgical Services Director at Logan Regional Hospital, attended the conference. She says, “It's inspiring to see the amount of research people are involved with and how they seek to improve patient care. My colleagues did a study demonstrating positive outcomes related to the use of CO₂ monitoring in the GI lab. I was excited to see this study shared and recognized.”

About the North Region's GI lab research. The North Region was well represented by many participants, including Deborah Morris, RN, BSN, and Dani Larsen, RRT, from Logan Regional Hospital. Deborah and Dani presented their work on identifying hypoventilation in patients who are sedated for a procedure in the GI lab. Hypoventilation, or breathing at a slow rate, can occur during sedation because of increased carbon dioxide in the blood.

Through simulation with the GI lab in 2014, Deborah and Dani began investigating the ability of sedated patients to sustain adequate ventilation throughout a GI procedure, including while sedated and recovering from a procedure.

Currently, the GI lab at Logan Regional Hospital uses an oxygen saturation monitor to determine adequate oxygenation levels, but Deborah and Dani proposed that a CO₂ monitor is a better indicator of

Continued on next page
Changes Instituted Since Study

- End tidal CO2 is now standard of care for all sedated GI lab patients

- One trained individual managing airway
  (Extra nurse for low risk cases, anesthesia for high risk cases)

- Previously, insurance would not pay for anesthesia services in GI lab. That is now changed.
Skin Assessment and Wound Training

Skin breakdown in the gluteal cleft on two patients had been missed on the admission skin assessment.

Wound Care manager did a root cause analysis and determined nurses needed more training. She asked for help from simulation facilitators.

Ninety-nine nurses attended this training.
“Spread the Cheeks” Campaign

Skin assessment training
This training with the make-shift buttocks led to an idea for an invention!

Patent application has been submitted for Spreadable Cheeks Wound Trainer
You never know where simulation may take you, what issues may be uncovered, or what ideas may be sparked.

You do not need to be an expert researcher or educator. You only need to feel passion for what you are doing and have a desire to make patient care safer.

You can make a difference!!!
Who Should Do DASH Evaluations for Simulation Facilitators?
Number of Facilitators Required to complete DASH Evaluation in first 6 Months of 2016

Started year with 69 facilitators –
• 2 who left the North Region
• 1 on medical leave
• 7 new facilitators (exempt)

59
Number who completed DASH Evaluation in first 6 months: 53

Number that completed a DASH in third quarter: 3
Total number completed by North Region second facilitator update:

56 95%

Number used in statistics:

57
Element 1 Averages
Set stage for engaging learning experience (Prebrief)

<table>
<thead>
<tr>
<th>Component</th>
<th>Self Evaluation</th>
<th>Peer Evaluation</th>
<th>REC Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A What would be expected, objectives, &amp; confidentiality,</td>
<td>5.9</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>B Strengths &amp; weakness of simulation – what participants can do to get the most out of SIM</td>
<td>5.8</td>
<td>6.6</td>
<td>6.4</td>
</tr>
<tr>
<td>C Logistical details</td>
<td>5.9</td>
<td>6.7</td>
<td>6.6</td>
</tr>
<tr>
<td>D Thoughts &amp; questions about SIM &amp; debriefing – reassured wouldn’t be shamed or humiliated</td>
<td>5.9</td>
<td>6.5</td>
<td>6.1</td>
</tr>
</tbody>
</table>
### Element 2 Averages
Maintained engaging context for learning

<table>
<thead>
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<th>REC Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Clarified purpose of debriefing, what’s expected, &amp; instructor’s role</td>
<td>5.2</td>
<td>6.1</td>
<td>4.9</td>
</tr>
<tr>
<td>B  Acknowledge concerns about realism</td>
<td>5.5</td>
<td>6.4</td>
<td>6.5</td>
</tr>
<tr>
<td>C  Showed respect to participants</td>
<td>6.3</td>
<td>6.8</td>
<td>6.9</td>
</tr>
<tr>
<td>D  Ensure focus on learning - not making people feel bad about making mistakes</td>
<td>5.9</td>
<td>6.8</td>
<td>6.8</td>
</tr>
<tr>
<td>E  Empowered participants to share thoughts &amp; emotions without fear of shame or humiliation</td>
<td>5.7</td>
<td>6.7</td>
<td>6.8</td>
</tr>
</tbody>
</table>
Element 3 Averages
Structured debriefing in organized way

<table>
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<th>REC Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A  Guide conversation so it progressed logically vs jumping around</td>
<td>5.2</td>
<td>6.3</td>
<td>5.8</td>
</tr>
<tr>
<td>B  Near beginning of debriefing, encouraged participants to share genuine reactions</td>
<td>5.6</td>
<td>6.5</td>
<td>5.8</td>
</tr>
<tr>
<td>C  In the middle, analyzed actions &amp; thought processes</td>
<td>5.4</td>
<td>6.3</td>
<td>5.6</td>
</tr>
<tr>
<td>D  At the end, had a summary phase to tie observations together &amp; relate ways to improve future clinical practice</td>
<td>5.5</td>
<td>6.5</td>
<td>6.1</td>
</tr>
</tbody>
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Element 4 Averages
Provoked in-depth discussions that led to reflecting on performance

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>A  Used concrete examples to get participants to think about performance</td>
<td>5.4</td>
<td>6.3</td>
<td>6.1</td>
</tr>
<tr>
<td>B  Point of view clear; didn’t force to guess what I was thinking</td>
<td>5.2</td>
<td>6.2</td>
<td>6.1</td>
</tr>
<tr>
<td>C  Made people feel heard – include everyone, nonverbal actions</td>
<td>5.6</td>
<td>6.6</td>
<td>6.1</td>
</tr>
<tr>
<td>D  Used video to support analysis &amp; learning</td>
<td>5.8</td>
<td>6.5</td>
<td>6.7</td>
</tr>
<tr>
<td>E  If someone upset, respectful &amp; constructive</td>
<td>5.7</td>
<td>6.8</td>
<td>5.4</td>
</tr>
</tbody>
</table>
## Element 5 Averages
Identified what they did well or poorly & why

<table>
<thead>
<tr>
<th>Component</th>
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<th>REC Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Provided concrete feedback on performance based on accurate statement of fact &amp; honest point of view</td>
<td>5.6</td>
<td>6.5</td>
<td>6.3</td>
</tr>
<tr>
<td>B Explore what participants were thinking/trying to accomplish at key moments</td>
<td>5.6</td>
<td>6.3</td>
<td>6.2</td>
</tr>
</tbody>
</table>
## Element 6 Averages

See how to improve or sustain good performance

<table>
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<th>REC Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Helped participants learn how to improve weak areas or repeat good performance</td>
<td>5.4</td>
<td>6.4</td>
<td>6.1</td>
</tr>
<tr>
<td>B Knowledgeable and used that knowledge to help participants see how to perform well in future</td>
<td>5.5</td>
<td>6.6</td>
<td>6.7</td>
</tr>
<tr>
<td>C Made sure covered most important topics</td>
<td>5.7</td>
<td>6.6</td>
<td>6.1</td>
</tr>
</tbody>
</table>
7 = Extremely Effective/Outstanding

Self evaluations – saw rating of 7 - 199 times

Peer evaluations – saw rating of 7 - 685 times

REC evaluations – saw rating of 7 - 511 times
6 = Consistently Effective/Very Good

Self evaluations – saw rating of 6 - 486 times

Peer evaluations – saw rating of 6 - 349 times

REC evaluations – saw rating of 6 - 334 times
5 = Mostly Effective/Good

Self evaluations – saw rating of 5 – 346 times

Peer evaluations – saw rating of 5 – 88 times

REC evaluations – saw rating of 5 – 180 times
4 = Somewhat Effective/Average

Self evaluations – saw rating of 4 – 129 times

Peer evaluations – saw rating of 4 – 18 times

REC evaluations – saw rating of 4 - 56 times
Conclusion:

Who should do the next DASH evaluation in 2018?

Most accurate?

Least accurate?
Survey Monkey Results:

Who should do the next DASH evaluation in 2018?

Most accurate?

Least accurate?
Questions