Title:
Merging Education, Research, and Simulation Innovation

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Session Title:
Merging Education, Research, and Simulation Innovation at Intermountain Healthcare
Slot:
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2:45 PM

Keywords:
Innovation, Research and Simulation

References:

Abstract Summary:
Simulation, a methodology for learning to improve staff education with regards to critical thinking and high reliability in a non-life-threatening scenario. Beyond training benefits, healthcare simulation offers the opportunity to study issues faced by healthcare providers that interfere with them providing optimal patient care without putting patients at risk.

Learning Activity:

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<th>LEARNING OBJECTIVES</th>
<th>EXPANDED CONTENT OUTLINE</th>
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<td>The learner will be able to describe applications of simulation and innovation</td>
<td>Examples of simulation applications and innovations from one large healthcare system will be described in detail.</td>
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<td>The learning will be able to identify a few starting points to moving a simulation program forward</td>
<td>How marketing our program helped us move forward from a small simulation lab with few employees to a large simulation program with 12 simulation labs across our system and one 10000 square foot facility.</td>
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Abstract Text:

Unfortunately, errors continue to occur in healthcare. The health care industry relies on individual expertise to simultaneously navigate multiple complex processes to provide patient care in a high-stakes environment. Despite the commitment to provide optimal care that the vast majority of healthcare professionals demonstrate, the potential for error remains high due to the complexity of delivering health care.

In addition to the increased complexity of medicine, technology in medicine is growing at a rapid pace with no signs of slowing. The “next generation” of clinicians has grown up with this technology and therefore, unique and progressive teaching modalities must be used to capture their attention to assure care provided to each one of our patients is safe and clinically accurate.

In 1999 the Institute of Medicine (IOM) recommended simulation training as one strategy that can be used to prevent errors in medicine. In the report, To Err is Human: Building a Safer Health Care System, it states that “Health care organizations and teaching institutions should participate in the development and use of simulation for training novice practitioners, problem solving, and crisis management, especially when new and potentially hazardous procedures and equipment are introduced” (Kohn et al, 1999, p. 179). As an organization with a culture of safety Intermountain Healthcare acknowledges the high-risk nature of its activities and holds the determination to achieve consistently safe operations.

Simulation training at Intermountain Healthcare began in 2006 when Primary Children’s Hospital opened the first simulation lab. Since that time, simulation training activities have consistently increased each year. Simulation training is a strategy that Intermountain uses to contribute to a culture of patient safety and improved patient outcomes. This is accomplished by providing learners with opportunities to experience unfamiliar life-like scenarios to practice teamwork, communication skills, and address human factors through the use of Crisis Resource Management principles, Zero Harm behaviors and techniques as well as Intermountain Healing Commitments (include reference).

The Intermountain Simulation Program has grown significantly since 2006; however, it was not until 2011 that we began to have organizational support from the Central Office Administrators to create policy, procedures, and processes for accountability and quality improvement. In 2011, the Central Office support consisted of a part time employee overseeing policy development and growth of simulation across 22 hospitals, including securing financial support for space and equipment and developing the Intermountain Simulation Facilitator Course for instructor development. In 2013, Central Office leaders recognized that the Simulation Program required a full time Manager and a part time Medical Director. Since 2013, six full time employees have been hired to support the growth and improve the quality of Intermountain Simulation at the Central Office level, including increasing the Medical Director hours and hiring additional Coordinators and
Technologists. At regional and facility levels throughout Utah and Idaho, the organization has enhanced the simulation strategic plan with the addition of ten full time employees to support simulation operations. Simulation facilitators have identified potential patient safety issues in need of further research to prevent patient harm. Facilitators are also now being evaluated to improve consistency with simulation operations.

As equally important to growing a program with organizational support and infrastructure, emphasis on continued quality improvement and sustainability is essential. Therefore, the simulation program leadership has developed a robust strategic plan that outlines our purpose to promote excellence in healthcare by using simulation-based education and research to understand the etiology of critical events (such as team training and RCA’s), test new processes (such as electronic medical record implementation), understand workflow to promote patient safety (human factors engineering), and improving compliance requirements (improving new employee orientation using simulation).

The purpose of this presentation will focus on how simulation has grown from a small one lab program with limited personnel support, to a robust program with a 10,000 square foot Simulation Center, twelve simulation labs, and eighteen simulation employees. This was done by marketing the programs which have supported our simulation purpose as stated above.

iCentra (the merger between Intermountain Healthcare and Cerner) Simulation

At Intermountain Healthcare, the simulation lab is used not only in education, but to identify best process and facilitate process improvement projects. The iCentra team recently engaged the simulation lab to help direct the decision of how moderate sedation would be captured within the Electronic Medical Record and which device would best meet the needs of clinicians performing these procedures. The simulation team identified two departments for simulation: Cardiopulmonary Recovery Unit and GI Lab. Clinicians were selected from each department and received training on the iCentra system prior to the simulation event. Each department simulated three scenarios and trialed both a Workstation on Wheels and a laptop for ease of use.

Of the two devices, the laptop with scanner was preferred to the workstation because they were able to leverage existing surfaces to complete their documentation. The nurses chose the documentation workflow where they scan the first dose of the sedation medication and then capture the incremental doses in the iView with the additional clinical assessment data. The final product of their documentation was also more comprehensive with this workflow where the laptop was used.

The Cardiopulmonary Recovery Unit team was pleased with the workflow and felt as though it would definitely work for their department as well as for bedside procedures. The GI lab struggled to complete the exercise and will require further investigation in order to successfully automate their department.
In summary, the simulation provided tremendous insight into the ability of these procedural areas to electronically document and scan medications. Leaders from across Intermountain Healthcare saw this as a valuable tool to train employees to the new EMR program and therefore funded two more FTE’s to support implementation.

Behavioral Health Bed

Utilizing a human factors approach to simulation we sought to determine most appropriate bed placement in our Behavioral Health Unit. In this unit, rooms are designed to keep the behavioral health patient safe. Rooms are small, no excess furniture, and beds are bolted to the floor. Behavioral Health management consulted the facility ICU Medical Director and Code Team Lead to ensure beds were placed in a position in the room which would allow a team to care for a patient in an emergency. Three different bed positioning options with pros and cons were discussed. A simulation was designed to reflect each of the options where the behavioral health and rapid response teams were ran through a realistic event. Discoveries were made that surprised all team members involved and provided enough clarity to determine the safest bed placement position in the room.

Rapid Response Order Sets

Intermountain Healthcare is a 22-hospital system that works continuously to improve quality of care through the application of standardized protocols and other care processes. In accordance with broadly accepted standards, each of our hospitals has a rapid response plan for deteriorating patients. However, a clear national standard does not exist for how to conduct rapid response calls. We sought to develop an order set, a response team documentation form, and a set of algorithms that could be applied across our system. To achieve rapid-cycle development of these tools, and build consensus around their adoption, we applied medical simulation with key stakeholders from across the system. In a series of simulation events we refined these tools, embedded them into our electronic medical record and implemented them across the healthcare system.

Simulation is a methodology for learning to improve staff education with regards to critical thinking and high reliability in a non-life-threatening scenario. Beyond training benefits, healthcare simulation technology offers the opportunity to study and uncover issues faced by healthcare providers that interfere with them providing optimal patient care without putting patients at risk, i.e. human factors simulation. Intermountain Healthcare has marketed the benefits of simulation to successfully grow their program. As technology changes, we will continue to find optimal ways to educate our employees and design workflows and process that prevent patient harm.