State of the Science of Simulation
2013

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Objectives

The learner will be able to:

• Summarize current research findings related to simulation based educational modalities

• Identify current trends in healthcare that can be enhanced with simulation

• Describe strategies for integrating simulation based training according to the most current evidence
Disclosure

• President: International Nursing Association for Clinical Simulation and Learning
• Co-Author: Elsevier Simulation Learning System (2009)

Thanks to TeamSTEPPS© Training Program: Essentials Course for teamwork slides

http://teamstepps.ahrq.gov/

RMU Regional RISE Center
INACSL
How many years of experience do you have with simulation?
Then and Now
Resources

- International Nursing Association for Clinical Simulation and Learning (INACSL):
  http://www.inacsl.org/INACSL_2010/

- Society for Simulation in Healthcare (SSH):
  http://www.ssih.org/SSIH/ssiH/Home/

- Simulation Innovation Resource Center (SIRC)
  http://sirc.nln.org/

- METI: Human Patient Simulation Network (HPSN)
  http://www.hspn.com/

- Laerdal: Simulation User Network (SUN)
  http://simulation.laerdal.com/
The International Nursing Association for Clinical Simulation and Learning (INACSL)

2011

Standards of Best Practice: Simulation
Need for Standards

• Advanced the profession
• Advanced a discipline
• Developed by experts but enforced by regulatory bodies
  – Example: Aviation success
Standards of Best Practice

1. Terminology
2. Professional Integrity of Participant
   – Safe Environment; Confidentiality
3. Participant Objectives
4. Facilitation Methods
   – None, Partial, Full
5. Simulation Facilitator
   – RMU.edu/SimulationLeadership
   – Certification Programs
6. The Debriefing Process
   – DML, GAS, DASH, etc
7. Evaluation of Expected Outcomes

www.inacsl.org
New in 2013

• Updated Standards
• Addition of Guidelines
• Remain Open Access
NCSBN Study

- One year has passed
- Multi-Site Study
- 10%, 25%, and 50% simulation
- Preliminary results
- More to come tomorrow!!
NLN Jeffries Simulation Framework Project

- INACSL
- Examining Constructs
- Publications
- Phase II
Simulation Design

- Theoretical Frameworks
  - Kolb’s Experiential Learning
  - Lave and Wenger Situated Cognition
- Essential Elements
- Standardized Approach
- Dose / Response?
Facilitator Preparation

• Certificate Programs vs. Certification
• Faculty Development Workshops
• Vendor Sponsored Events
• Standards
  – INACSL
  – SSH Accreditation
Society for Simulation in Healthcare

- Certification for Instructors
  - Certified Healthcare Simulation Educator

- Accreditation for Simulation Centers
  - Core
    - Management and Leadership
    - Policies and Procedures
  - Research
  - Teaching and Assessment
  - Evaluation
  - Systems
Evaluation

• Summative vs Formative
• Inter-rater Reliability
• Quality Improvement
  – Participant
  – Scenario
  – Program
An Updated Review of Published Simulation Evaluation Instruments

Katie Anne Adamson, PhD, RN, Suzan Kardong-Edgren, PhD, RN and Janet Willhaus, MSN, RN

Clinical Simulation in Nursing
DOI: 10.1016/j.ecns.2012.09.004
Figure 1

**Level 4 Outcomes**
(impact of the training program, i.e. on patient safety)
**T-3 results improve patient outcomes**

**Example**
Reduced infection rates
(Cohen, et al, 2010)

**Level 3 Behavior**
(Capability to perform learned skills while on the job)
**T-2 results carry over into patient care setting**

**Example**
Changes in clinical practice
(Meyer, et al, 2011)

**Level 2 Learning**
(Extent to which the learners gained knowledge and skills)
**T-1 results demonstrated in simulation lab**

- Psychomotor
- Knowledge exam
- Cognition
- Caring, cultural sensitivity survey
- Affective
- Self-confidence survey

**Level 1 Reaction**
(How learners reacted to the learning process)
(Boulet, et al, 2011)
**T-0 not applicable to translational research**

Source: *Clinical Simulation in Nursing* (DOI:10.1016/j.ecns.2012.09.004)
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Debriefing Updates

• Importance of Training for Debriefeer
• Knowledge, Skills, and Attitudes
• Safe Environment
• Participant vs Facilitator Led
• Models
  – Debriefing for Meaningful Learning (Dreifurst)
  – DASH (Harvard)
  – GAS
Standardized Patient and Hybrid Approaches

• Different Approaches
  – Mannequin
  – Standardized Patient
  – Hybrid

• Standards for each Method

• Fidelity Correlates with Objectives
Figure 29-1: Fidelity correlated with Objectives

<table>
<thead>
<tr>
<th>Objective: The learner will . . . .</th>
<th>Type of Simulator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accurately place central line catheter</td>
<td>Task-trainer</td>
</tr>
<tr>
<td>Maintain sterile technique when placing a central line</td>
<td>Task-trainer</td>
</tr>
<tr>
<td>Clearly communicate risks when obtaining consent from patient</td>
<td>Standardized patient</td>
</tr>
<tr>
<td>Use various communication techniques to calm patient’s anxiety</td>
<td>Standardized patient</td>
</tr>
<tr>
<td>Recognize need for central line insertion during hypertensive crisis</td>
<td>High-fidelity simulator</td>
</tr>
<tr>
<td>Insert central line when rapid blood transfusion is required</td>
<td>High-fidelity simulator</td>
</tr>
</tbody>
</table>
Interprofessional Education
Teamwork
and
Simulation
True or False?

Interest in promoting more team-based education for US health professions is a phenomena which was introduced within the last decade.
IOM Conference - 1972

• Steering Committee Recommendations
  – Organizational Level
  – Instructional Level
  – National Level
Then and Now

• Similar Recommendations (O’Neil & the Pew Health Professions Commission, 1998)
• Limiting Factors and Challenges (Schmitt, Baldwin, & Reeves, 2012)
• Continued concerns with preventable errors and quality
• Focus on teamwork training
Sue Sheridan Video
“How care is delivered is just as important as what care is delivered”

IPEC, 2011
Impact of Error:
- 44,000–98,000 annual deaths occur as a result of errors
- Medical errors are the leading cause, followed by surgical mistakes and complications
- More Americans die from medical errors than from breast cancer, AIDS, or car accidents
- 7% of hospital patients experience a serious medication error

Cost associated with medical errors is $8–29 billion annually.

Federal Action:
By 5 years;
- medical errors by 50%,
- nosocomial by 90%; and
eliminate “never-events” (such as wrong-site surgery)
Today

• Medical Mistakes – third leading cause of death in the US (Gupta, 2012)

• Harms remain
  – Little improvement in widespread patient safety efforts
  – Small improvements in focused efforts with nosocomial infections and surgical safety

  • Landrigan, et al. Temporal Trends in Rates of Patient Harm Resulting from Medical Care, *New England Journal of Medicine*, November 25, 2010: 363(22); 2124-34.)
Interprofessional Education (IPE)

When students from two or more professional learn about, from and with each other to enable effective collaboration and improve health outcomes

WHO, 2010
WHO Framework (2010)
FIGURE 1: Interprofessionalism as the field of interprofessional practice and interprofessional education: An emerging concept.

IPEC Core Competencies
Core Competencies for Interprofessional Collaborative Practice

- May, 2011
- Expert Panel
  - American Association of Colleges of Nursing
  - American Association of Colleges of Osteopathic Medicine
  - American Association of Colleges of Pharmacy
  - American Dental Education Association
  - Association of Medical Colleges
  - Association of Schools of Public Health
Interprofessional Competencies in Healthcare

Integrated enactment of knowledge, skills, and values / attitudes that define working together across the professions, with other healthcare workers, and with patients, along with families and communities, as appropriate to improve health outcomes in specific care contexts

IPEC Report, 2011
Core Competencies for Interprofessional Collaborative Practice

- Four Competency Domains
  - Values/Ethics for Interprofessional Practice
  - Roles / Responsibilities
  - Interprofessional Communication
  - Teams and Teamwork
“Work with individuals of other professions to maintain a climate of mutual respect and shared values”

- Place the interests of patients and populations at the center of interprofessional health care delivery.
- Respect the dignity and privacy of patients while maintaining confidentiality in the delivery of team-based care.
- Embrace the cultural diversity and individual differences that characterize patients, populations, and the health care team.
- Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions.
- Work in cooperation with those who receive care, those who provide care, and others who contribute to or support the delivery of prevention and health services.
- Develop a trusting relationship with patients, families, and other team members (CIHC, 2010).
- Demonstrate high standards of ethical conduct and quality of care in one’s contributions to team-based care.
- Manage ethical dilemmas specific to interprofessional patient/population centered care situations.
- Act with honesty and integrity in relationships with patients, families, and other team members.
- Maintain competence in one’s own profession appropriate to scope of practice.
“Use the knowledge of one’s own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served”

- Communicate one’s roles and responsibilities clearly to patients, families, and other professionals.
- Engage diverse healthcare professionals who complement one’s own professional expertise, as well as associated resources, to develop strategies to meet specific patient care needs.
- Explain the roles and responsibilities of other care providers and how the team works together to provide care.
- Use the full scope of knowledge, skills, and abilities of available health professionals and healthcare workers to provide care that is safe, timely, efficient, effective, and equitable.
- Communicate with team members to clarify each member’s responsibility in executing components of a treatment plan or public health intervention.
- Forge interdependent relationships with other professions to improve care and advance learning.
- Engage in continuous professional and interprofessional development to enhance team performance.
- Use unique and complementary abilities of all members of the team to optimize patient care.
- Recognize one’s limitations in skills, knowledge, and abilities.
“Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease.”

• Choose effective communication tools and techniques, including information systems and communication technologies, to facilitate discussions and interactions that enhance team function.

• Organize and communicate information with patients, families, and healthcare team members in a form that is understandable, avoiding discipline-specific terminology when possible.

• Express one’s knowledge and opinions to team members involved in patient care with confidence, clarity, and respect, working to ensure common understanding of information and treatment and care decisions.

• Listen actively, and encourage ideas and opinions of other team members.

• Give timely, sensitive, instructive feedback to others about their performance on the team, responding respectfully as a team member to feedback from others.

• Use respectful language appropriate for a given difficult situation, crucial conversation, or interprofessional conflict.

• Recognize how one’s own uniqueness, including experience level, expertise, culture, power, and hierarchy within the healthcare team, contributes to effective communication, conflict resolution, and positive interprofessional working relationships (University of Toronto, 2008).

• Communicate consistently the importance of teamwork in patient-centered and community-focused care.
“Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient / population centered care that is safe, timely, efficient, effective, and equitable”

• Describe the process of team development and the roles and practices of effective teams.
• Develop consensus on the ethical principles to guide all aspects of patient care and team work.
• Engage other health professionals—appropriate to the specific care situation—in shared patient-centered problem-solving.
• Integrate the knowledge and experience of other professions—appropriate to the specific care situation—to inform care decisions, while respecting patient and community values and priorities/preferences for care.
• Engage self and others to constructively manage disagreements about values, roles, goals, and actions that arise among healthcare professionals and with patients and families.
• Share accountability with other professions, patients, and communities for outcomes relevant to prevention and health care.
• Reflect on individual and team performance for individual, as well as team, performance improvement.
• Use process improvement strategies to increase the effectiveness of interprofessional teamwork and team-based care.
• Use available evidence to inform effective teamwork and team-based practices.
• Perform effectively on teams and in different team roles in a variety of settings.
• Apply leadership practices that support collaborative practice and team effectiveness.
Essentials Course
Key Principles

Team Structure
Delineates fundamentals such as team size, membership, leadership, composition, identification and distribution

Leadership
Ability to coordinate the activities of team members by ensuring team actions are understood, changes in information are shared, and that team members have the necessary resources

Situation Monitoring
Process of actively scanning and assessing situational elements to gain information, understanding, or maintain awareness to support functioning of the team

Mutual Support
Ability to anticipate and support other team members’ needs through accurate knowledge about their responsibilities and workload

Communication
Process by which information is clearly and accurately exchanged among team members
How does this relate to simulation?
Examples

• Teamwork training throughout the curriculum

• IPE Collaborative Simulation Project
  – Physicians, BSN and DNP Nurses, NMT
  – Three scenarios incorporating IPEC
  – Teambuilding Activity
  – Evaluation using RIPLS, Sim Perspective, and Leadership and Team Behavior Measurement Tool
  – Canadian Interprofessional Health Collaborative
  – http://www.cihc.ca/resources/evaluation_instruments
Integrating Teamwork / IPE Training through Simulation

- Develop the Plan
- Use Current Evidence and Standards
- Curricular Map
- Include the IPE Team with Planning
- Utilize Standards
- Involve Experts
  - Content
  - Simulation
  - Teamwork
- Pilot Test
Simulation Design Using the Standards

- Standard 2
  - Confidentiality Statements
  - Professionalism

- Standard 3
  - Curricular Map RISE
  - Mental Health / Med Surg Scenario

- Standard 4
  - Facilitation Methods based upon Objectives

- Standard 5
  - Facilitator Development Activities (next slide)

- Standard 6
  - Methods of Debriefing
    - DASH
    - G.A.S
  - Evidence based

- Standard 7
  - Evaluation of Scenario
  - METI SET
  - Evaluation of Participant
New Uses for Simulation

• Different Environments
  – In situ
  – Long Term Care
    • RAVEN Initiative

• QSEN

• NCLEX Remediation
Faculty Development Resources

• Organizations
  – INACSL  www.inacsl.org
  – SSH  www.ssih.org

• Corporate Workshops
  – Laerdal SUN
  – METI HPSN

• Academic Programs
  – Harvard Center for Medical Simulation
    • http://www.harvardmedsim.org/
  – Robert Morris University Leadership in Simulation Instruction and Management Certificate Program (online)
    • www.rmu.edu/simulationleadership
  – BryanLGH Simulation Certificate Program (online)
    • http://www.bryanhealth.com/simulationeducation
References


Landrigan, et al. Temporal Trends in Rates of Patient Harm Resulting from Medical Care, New England Journal of Medicine, November 25, 2010: 363(22); 2124-34.)


