ORIGINAL RESEARCH

Utilization of the Standards of Best Practice Simulation: A descriptive study

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ABSTRACT

Objective: The Standards serve as a framework for simulation activities development, providing terminology, rationale, outcomes, criteria and guidelines based on evidence-based best practices. The purpose of this study was to investigate the extent to which educators have heard, read, adopted, and used the guideline statements in the Standards of Best Practice: Simulation.
Methods: This study used survey research with a convenience sample to evaluate educator's use of the Standards.
Results: Most individuals indicated they had heard of the Standards but less indicated they had read or adopted the Standards as a framework for simulation education. Overall, the guideline statements in Standard VI (The Debriefing Process) and Standard VII (Participant Assessment and Evaluation) were used less than guideline statements in other Standards.
Conclusions: More dissemination of the Standards is needed for educators to recognize the value of the Standards and adopt the Standards into practice.

Key Words: Simulation, Standards of best practice, Guideline statements

1. BACKGROUND

The Standards of Best Practice: Simulation[1] provides individuals who work in simulation with terminology, rationale, outcomes, criteria and guidelines based on evidence-based best practices. The Standards were first published by the International Nursing Association for Clinical Simulation and Learning (INACSL) in 2011 for the purpose of standardizing a framework for simulation activities development. Use of the Standards is crucial to standardize the science of clinical simulation.

Since the initial premier three years ago,[2] the Standards have been credited as a valuable tool in simulation. The Standards have been cited as evidence-based practice guide-lines[3] and used to guide the development of simulated clinical experiences.[4–7] The Standards have informed policies and procedures in laboratory settings nationally[8,9] and internationally.[10–12] Several authors have shared challenges and outlined strategies to enhance implementation of the Standards into practice.[13]

Hayden, Smiley, Alexander, Kardong-Edgren & Jeffries[14] stated that policy decisions regarding the use and amount of simulation in nursing need to be dependent upon the utilization of best practices in simulation, and the authors recommended the INACSL Standards of Best Practice.[1] Still, while there is anecdotal evidence on the use of the Standards, no study has evaluated if and how educators in simulation are using the Standards and which guideline statements are

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being implemented.

1.1 Purpose of the study

The purpose of this study was to investigate the use of the Standards. The research questions for this study were:

(1) To what extent have educators heard of the Standards?

(2) To what extent have educators read the Standards?

(3) To what extent have simulation centers adopted the Standards of Best Practice: Simulation as a framework for simulation education?

(4) To what extent are the guideline statements in the Standards used?

1.2 Guiding framework

The guiding framework for this study was Rogers'[15] diffusion of innovation theory. Rogers described an innovation as "an idea, practice, or project that is perceived as new by an individual or other unit of adoption".[15] Diffusion of innovation theory is the most suitable for examining the implementation of technology or innovation in higher education and educational environments. In his theory, Rogers[15] used the terms "technology" and "innovation" interchangeably and included four main elements in the diffusion of innovations theory: innovation, communication channels, time, and social system.

Rogers[15] described the innovation-decision process as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation".[15] There are five steps that an individual takes as she or he moves towards acceptance or rejection of the innovation. Those steps, or stages, generally proceed as follows: 1) knowledge, 2) persuasion, 3) decision, 4) implementation, and 5) confirmation.

Relating this to simulation, the innovation-decision process depicts how individuals make a decision to accept or reject The Standards (the innovation). Individuals 1) obtain knowledge about The Standards, 2) form an attitude related to The Standards, 3) make an initial choice to adopt or reject The Standards, 4) implement The Standards into practice (if The Standards were initially accepted in stage three), and 5) seek support to confirm the decision to accept The Standards. Implementation or Stage 4 of the innovation-decision process is the focal point of this research. The authors would like to know if educators in simulation are implementing the guideline statements of The Standards.

2. METHODS

This study was approved by the Institutional Review Board at the Cleveland Clinic. Participants were recruited at the 13th Annual INACSL Conference held June 19-21, 2014 in Orlando, Florida. To be eligible to participate in this study, participants had to 1) be an educator or simulation technologist with 6 months of experience in simulation, and 2) able to speak and/or read English. A research booth was available in the Exhibitor hall for participants who were interested in the study to approach.

A survey was developed that contained the criteria, guideline and guideline statements from the INACSL Standards of Best Practice: Simulation.[1] Participants were asked to answer four general yes/no questions which pertained to whether they had heard, read and adopted the Standards. Then participants were asked to read each guideline statement and place an X in the box that best described how he or she used the guideline statement. Participants choose one of three options: 1) Yes, I implement this in simulation, 2) No, I do not implement in simulation, or 3) I do not know if I implement this in simulation.

Participants interested in participating in the survey approached the study booth and received a study envelope containing: 1) cover letter/waived consent form with study information, 2) demographic questionnaire, 3) survey questionnaire, and 4) sealable manila envelope. Participants returned the completed study packet (demographic form and survey questionnaire) in the sealed manila envelope to the study booth.

3. RESULTS

3.1 Research questions

Sixty-eight individuals from 30 states participated in the survey. Three participants were from Canada and one from New Zealand. Most respondents indicated their role in simulation was an educator (80.3%) in an academic setting (79.9%). Participants were female (95.5%), nurses (97%), and had a masters degree or higher (84.8%). Twenty percent were a Certified Healthcare Simulation Educator. Most indicated they had received simulation education as part of on the job training (84.8%), through continuing education (77.3%), at a workshop (56.1%), and/or through a vendor (53%). Guidelines were used 50% of the time in education received.

More individuals had heard of the 2013 Standards than the 2011 Standards (n = 68; 85.3% *vs.* 75.8%). However, only 75% (n = 68) indicated they had read the Standards 2013, and even less (n = 68; 58.2%) stated their simulation center have adopted the Standards as a framework for simulation education.

Overall, participants indicated they use the majority of guideline statements listed in Standards II-V. There was a decrease in the use of guidelines statements for Standard VI and Stan-

dard VII. Table 1 presents an overview of the use (mean and standard deviation) of guideline statements for each individual Standard.

Table 1. Use of the guideline statements, standards of best practice: Simulation (2013)

Standard	M (SD)
II: Professional Integrity of the Participant(s)	.93 (.15)
III: Participant Objectives	.87 (.14)
IV: Facilitation	.90 (.14)
V: Facilitator	.92 (.14)
VI: The Debriefing Process	.85 (.24)
VII: Participant Assessment and Evaluation	.44 (.32)
Overall	**.82 (.15)**

3.2 Additional findings

To determine if education and years of experience had any effect on the findings, correlations between the two variables and the results were investigated. There was a weak positive correlation ($r = .244$) between individuals who indicated they use the guideline statements in Standard VI (The Debriefing Process) and years of simulation experience, although it was not statistically significant ($p > .05$). There was no correlation found between the adoption of the Standards and education level ($p < .992$) or the adoption of the Standards and years the respondent participated in simulation as an educator ($p < .456$). There was no correlation between the overall use of the Standards and the level of education ($p < .148$) nor was there a significant relationship between those individuals who indicated they use Standard VII (Participant Assessment and Evaluation) and education level ($p < .791$).

4. DISCUSSION

With over 85% of participants indicating they have heard of the Standards and 75% indicating they have read the Standards, it is unclear why adoption of the Standards is 20%-30% lower. It may be that individuals have not thought of adding the Standards to their policy and procedure manuals for accreditation purposes or that they have not considered the Standards as a tool that can be used to standard the simulation process.

It may be that more appreciation of the Standards is needed in order for people to recognize the value of this document and adopt the Standards into simulation centers. While some simulation centers reference their use of the INACSL Standards as a framework and policy,[8,9] there is a need for more sharing of the use of these evidenced-based practice guidelines. Studies like the NCSBN National Simulation Study[14] which recommend and support of the use of the Standards may be needed in order to move individuals along the innovative-decision process from stage 4, implementation, to stage 5,

confirmation.[15]

The large variance of use of the guideline statements for Standard III (Participant Objectives) demonstrates inconsistency in the use of objectives in simulation. The indication that some educators do not use Bloom's taxonomy in objectives or pilot the objectives within the timeframe of the simulation-based learning experience is concerning because objectives provide a blueprint for simulation learning outcomes.[16, 17] The action verbs make the objectives measurable to evaluate the outcomes. Rutherford-Hemming, Lioce, and Durham[13] outline the connections between program, course, and simulation objectives. Chmil[18] ascertains that educators can use simulation objectives to transition students from novices to experts. Piloting simulations prior to implementation is critical to determine if objectives are achievable within the simulation timeframe. More education is needed for educators and facilitators on the importance of writing measurable objectives.

The indication by respondents that they do not frequently use objectives related to mental health, spirituality, and cultural sensitivity and competence is consistent with the literature which indicates that few educators use simulation to teach these topics. Hermanns, Lilly and Crawley[19] stated, "Although simulation has been used successfully to enhance the clinical experiences in the medical-surgical and obstetrical curricula, it has not been widely used as an adjunct to psychiatric clinical experiences for undergraduate students." And, while, Grossman, Mager, Opheim, and Torbjornsen[20] acknowledge simulation is used to improve cultural skills in nursing student, they conclude, "Much more research will be needed in this area by blending the use of simulation pedagogy with the skill of mastering cultural assessment and measuring outcomes." This may explain why fewer respondents said they are reflecting on holistic and culturally competent care during the debriefing. If they are not writing and using objectives on these topics for the simulation, then they would not reflect on these during the debriefing.

Respondents who do not develop a list of expected behaviors to ensure learning objectives are met indicates that additional education is needed in this area. Rutherford-Hemming, Lioce, and Durham[13] give several strategies for implementing Standard IV (Facilitation), one of which is developing a checklist of the guideline statements to ensure that objectives and learning outcomes are met.

The lower use of guideline statements in Standard VI (The Debriefing Process) is concerning. Debriefing is an (if not the most) important, vital and fundamental part of simulation.[21–23] Debriefing incorporates reflective learning to increase students' clinical reasoning and clinical judgment

skills.[24–26]

The use of guideline statements in Standard VI (The Debriefing Process) may indicate a need for additional education for those who debrief in simulation especially for educators who do not or do not know if they use, "best practices in debriefing with regard to structuring the format of the debriefing and facilitating reflective discussion".[1,27] Research by Mariani, Cantrell, Meakim, Prieto, and Dreifuerst[27] demonstrated that students who experienced structured debriefing had increased clinical judgment scores as compared to students who did not receive structured debriefing.

Respondents who do not use or do not know if they "use the appropriate style of debriefing (including video playback) based on participant objectives", and/or "allow progression through the phases of debriefing (reaction, analysis, and summary)"[1,28] may also need additional education. Debriefers need to be made aware of evidence-based literature supporting these statements[28–30] and offered formal or mentored training on debriefing.[13]

There was a dramatic drop in the number of individuals who use guideline statements in Standard VII (Participant Assessment and Evaluation). These findings align with what has previously been published in the literature. There is evidence that educators struggle with assessment and evaluation of participants in simulation.[31] Kardong-Edgren, Adamson and Fitzgerald[32] stated, "The lack of reliable and valid instruments to evaluate simulation learning outcomes is inhibiting the adoption and progress of simulation in nursing education." Three years later some of the same authors performed a review of nursing, medicine and pharmacy literature and claimed that healthcare educators "echo a continued quest for meaningful ways to evaluate participants in simulation activities".[33] While some authors advocate for high-stakes evaluation in nursing,[34] a study and report from Rutherford-Hemming, Kardong-Edgren, Gore, Ravert, and Rizzolo[35] discussed the divide between nurse educators about implementing high-stakes testing in nursing education and the undergraduate licensure examination.

4.1 Limitations
This study used a targeted convenience sample, and the respondents were attendees at a simulation conference. The use of a convenience sample limits external validity; the findings may not represent the general nursing education population using simulation. The sample was homogenous (white, female), and small in size. The respondents self-selected and presented themselves to the research booth at the conference.

4.2 Recommendations for future study
This study should be replicated with a more diverse population of simulation professionals. Future studies may indicate that more schools of nursing are in the early stages of Roger's Diffusion of Innovation theory.[15]

Additionally, this study collected data collected two months prior to the release of the landmark National Council of State Boards of Nursing National Simulation Study (NCSBN)[14] findings. Therefore the use of the Standards should be reevaluated to determine the impact of the NCSBN study recommendations. It is anticipated that there will be an increase in the use of the Standards in the next few years because the NCSBN Simulation Study[14] recommended the use of the Standards.

Since the time that data were collected for this study, two new Standards have been developed: Standards of Best Practice: Simulation Standard VIII: Simulation Enhanced Interprofessional Education (Sim-IPE)[36] and Standards of Best Practice: Simulation Standard IX: Simulation Design.[37] It will be important to include these new Standards in future studies and ascertain the use of those guideline statements.

5. CONCLUSION
The Standards of Best Practice: Simulation[1] are becoming more prevalent as a framework and guide for implementing simulation. This is the first time the guideline statements in the Standards of Best Practice: Simulation[1] have been evaluated for use. The data in this study provide valuable insight into which guideline statements are implemented in simulation and where gaps exist. Some Standards appear to be a staple in simulation practice while others show diverse and infrequent use in implementation. This survey provides baseline data on the use of the only evidence-based practice Standards in simulation, providing a platform to assess future growth of this document.

CONFLICTS OF INTEREST DISCLOSURE
The authors declare that there is no conflict of interest.

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