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INACSL Standards of Best Practice: Simulation[SM]: Operations

The INACSL Standards Committee

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As the science of simulation continues to evolve, so does the need for additions and revisions to the INACSL Standards of Best Practice: Simulation[SM]. Therefore, the INACSL Standards of Best Practice: Simulation are living documents.

Standard

All simulation-based education programs require systems and infrastructure to support and maintain operations.

Background

Simulation operations encompass the infrastructure, people, and processes necessary for implementation of an effective and efficient simulation-based education (SBE) program. The interactions of these pieces must form a system that integrates with larger educational and health care entities to realize the goals of SBE. SBE is no longer an adjunct to health care training and/or professional development programs but an all-inclusive integrated program requiring business acumen and technically knowledgeable personnel that serve as team members providing leadership and support in the delivery of SBE. The required knowledge, skills, and attributes to implement evidence-based best practices for simulation experiences are evolving rapidly.[1-3] These skills may be possessed by an individual or shared among a team. Specialists with business, education, and technical skills promote growth, sustainability, fidelity, and achievement of goals and outcomes.[4] The need for defining simulation operations goes beyond any role or title. Successful simulation operations are curated as dynamic collaborations among leaders, educators, learners, and adaptive relationships between departments.

SBE operations begin with a strategic plan which creates the structure and defines the function for a SBE program.[5] The guiding principle of this plan aligns with the program mission. The needs of the SBE program's stakeholders are

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supported by this strategic plan.[6] A complete strategic plan has realistic goals and fits within the organization's capacity for implementation.[7] This plan also provides a foundation from which progress can be measured and establishes a mechanism for informing change when needed. This document creates a shared understanding that outlines the beginning state, desired outcomes, activities to meet those outcomes, and evaluation metrics to document outcomes of the SBE program.

Personnel and financial resources are also an integral part of SBE programs. The largest barriers to growth in simulation centers worldwide is lack of financial support and technical (operations) staff.[8-10] The National Council of State Boards of Nursing study found that dedicated, trained simulation personnel are necessary to ensure consistent and reproducible SBE outcomes.[2] With formal simulation education beginning to materialize,[11-13] it is necessary to recognize formal simulation education and training as the preferred requirement for hire; however, personnel with on-the-job training and relevant prior experience can be substituted when competency and proficiency can be demonstrated.[14] The SBE program must also budget for, and use, appropriate fidelity, space, equipment, resources, and the expertise necessary to operate and meet all facets of the program.[4,15]

The SBE budget and human resource requirements must foster and support expertise and professional development of SBE personnel. Proficiency, competency, and expertise in SBE[6,16,17] pedagogy leads to improved outcomes in the regional and/or global delivery of health care.[18] Well-designed SBE programs require a large investment of money, resources and time, often with limited capacity to yield equal immediate monetary return on investment.[19,20] Ultimately, the goal is improved competency metrics among novice learners, clinicians transitioning to practice, licensed clinicians engaging in continuing education, and a positive effect on patient outcomes.

As the evolution of SBE programs continues, administration, education, coordination, and technical implementation must be addressed.[6,18,21,22] Written policies and procedures will define role delineation, job requirements, accountability, safety, contingency, effectiveness, and efficiency,[23,24] while intentional systems integration will bring together multiple potentially disparate groups to achieve a common goal for a SBE program. These processes are continually evolving, requiring management and business knowledge to successfully support the needs of the SBE program, key stakeholders, and affected health care systems.[25-27]

Potential consequences of not following this standard place programs at risk of not achieving SBE strategic goals and objectives. If expertise is not efficiently used or not accurately recognized, programs may fail to create an effective and efficient SBE program. If fiscal appropriations cannot meet the strategic needs of the SBE program, sustainability will also be at risk and/or growth stifled.

Criteria Necessary to Meet This Standard

1. Implement a strategic plan that coordinates and aligns resources of the SBE program to achieve its goals.
2. Provide personnel with appropriate expertise to support and sustain the SBE program.
3. Use a system to manage space, equipment, and personnel resources.
4. Maintain and manage the financial resources to support stability, sustainability, and growth of the SBE program's goals and outcomes.
5. Use a formal process for effective systems integration.
6. Create policies and procedures to support and sustain the SBE program.

Criterion 1: Implement a strategic plan that coordinates and aligns resources of the SBE program to achieve its goals.

Required Elements:

- ○ Define a strategic plan independent of the governing institution, if one exists, that supports the mission and vision of the SBE program and larger organization.[5,6]
- ○ Develop plans for
  - Immediate strategic goals (less than a year)
  - Short-term strategic goals (1-2 years)
  - Long-term strategic goals (3-5 years)
- ○ Use an organizational chart that supports the goals and outcomes of the SBE program, identifying, at a minimum, roles for[20]
  - Simulation leadership
  - Simulation operations
  - Simulation education
- ○ Involve key stakeholders in the strategic planning process.[17,24,28]
- ○ Incorporate an ongoing professional development plan for simulation personnel with associated competency validation (see also criterion 2).[2,6,17,23,29]
  - Development plan should be program and personnel specific to meet identified needs and may include such things as
    - ■ Attendance at local, regional, and/or national conferences
    - ■ Completing online or in-person SBE-focused courses
    - ■ Joining regional networks to share resources and skills
- ○ Implement a systematic plan for evaluation, with a prescribed review/revision cycle, allowing for more frequent review and/or revision as evidence, regulation, and/or programmatic changes occur; including ongoing review of simulation literature for best practices.[29-31]
- ○ Articulate the value proposition or return on investment of the simulation program.[19,20]

- Identify justifiable capital expenditures including[4,15]
  - Facility improvements and expansion
  - SBE equipment
  - Durable medical equipment
- Plan to replace assets that have exhausted their useful life
- Use a communication plan to report the progress of the strategic goals to key stakeholders.[5,32-34]

Criterion 2: Provide personnel with appropriate expertise to support and sustain the SBE program.

Required Elements:

- Design job descriptions for the SBE program that align with the organizational structure.
- Articulate scope of practice, educational requirements, and compensation for each role.
- Ensure that personnel can meet the job skills, or be trained to meet expectations, as part of the hiring and ongoing employment processes.[2,35]
- Accurately portray responsibilities within the SBE program. These roles may be held by one or more persons even with different titles:
  - Implementation role responsibilities may include[10]:
    - Audiovisual
    - Information technology/systems
    - Manikin operation and programming
    - Standardized/simulated patient coordination, communication, and portrayal
    - Manages and maintains schedule
    - Set up/break down of simulated environment
    - Moulage
    - Data collection
    - Creation, manipulation, and revision of graphic and video content
  - Leadership, administrative, and/or management role responsibilities may include
    - Policy and procedure creation, oversight, revision, and enforcement
    - Program oversight and management of daily operations
    - Liaison with stakeholders[36]
    - Coordination of personnel and resources
    - Training
    - Hiring/firing
    - Onboarding
    - Ordering of supplies and capital equipment
    - Budget planning and oversight
    - Strategic planning
  - When education, credentialing, and competency are validated, personnel, regardless of title, may be extended responsibility for[2]:
    - Scenario design and development
    - Implementation and facilitation
    - Evaluation
    - Debriefing
- Provide trained personnel with capabilities to set up, operate, and maintain equipment to meet the simulation-based objectives. This must include competency with the following, as appropriate for their job description[6,7]:
  - Computer networking and connection of simulation IT infrastructure
  - Audiovisual systems
  - Operation and troubleshooting of simulation typologies and modalities as they advance
  - Costuming and moulage
  - Media file usage, manipulation, access, storage, security, and destruction
  - Staging, scripting, and use of props
  - Simulation educational purpose and teaching methods
  - Applicable health care equipment and terminology
  - Implementation and training of standardized/simulated patients as appropriate for their program
  - Initial and ongoing development of skills for the simulation program as determined by needs assessment

Criterion 3: Use a system to manage space, equipment, and personnel resources.

Required Elements:

- Identify roles, tasks, and expectations for the set up and break down of simulation-based activities (see INACSL Standard: Simulation Design).
- Maintain a competency-based training program for personnel to operate applicable equipment,[17,28,37] which may include
  - Beds/examination tables, headwalls, patient monitors, and other health care equipment
  - Computer systems
  - Medication dispensing systems
  - Phone systems
  - Vital sign monitors
  - Task trainers
  - Manikins
  - Audiovisual or debriefing systems
  - Virtual reality or augmented reality training systems
  - Surgical/procedural simulators
  - Computer-based training programs
  - 3D printers
  - Electronic health records, documentation, and order entry programs
  - All additional simulation-specific equipment
- Follow a written plan addressing the educational objective(s)/purpose(s) with an accessible list of supplies, equipment, and personnel required to support the activity (see INACSL Standard: Simulation Design)
  - All simulation-based activities must be piloted before implementation.[38-40]
  - Written scenario instructions must include expected time to set up, run, brief or prebrief, debrief and breakdown each simulation-based activity.

- Adequate time must be accounted for and planned for training of standardized/simulated patients as appropriate.[41]
- Coordinate and plan transitions between sessions to minimize downtime.[42]

○ Use a scheduled or periodic review process to ensure all simulation-based activities are feasible and appropriately designed based on programmatic resources.
- Incorporate outcomes data, participant, facilitator, and staff feedback into this review process.[5,30]

○ Have a system and/or process and policy to prioritize requests, reserve rooms, equipment, and ensure personnel are available to operate and support each simulation-based activity.

○ Use an inventory control system to manage purchasing, shipping and receiving, tracking, storage, and reordering of equipment and supplies.

○ Ensure all SBE experiences and associated activities are in an environment that complies with institutional, national, international, or other regulatory occupational safety practices.[43,44] For example:
- Ventilation, if working with fumes or gases
- Using correct ergonomic techniques for lifting heavy equipment to prevent injury
- Prevention, identification, and reporting of needle sticks and other injuries

Criterion 4: Maintain and manage the financial resources to support stability, sustainability, and growth of the SBE program's goals and outcomes.

Required Elements:

○ Sustain a defined SBE budget with a quantified, formalized plan to analyze and control costs.[45-47]

○ Plan an operating budget for the program's revenues and expenses on a year-to-year basis.
- Consider program activities that may generate revenues through
  - Continuing education programs
  - Providing services to external clients
  - Donors, stakeholders, partnerships, alliances, grants, or loans[48]

○ Prepare and execute an operational budget in consideration of the organization and the SBE program's environmental review, current and future goals/objectives, and priorities.[34]
- Identify fixed costs that do not change regardless of the number of simulations conducted.
  - For example, facility overhead, maintenance and service contracts, personnel, and professional development for all permanent staff.
- Identify variable costs that change based on the number of SBE activities and participants.
  - For example, staffing for SBE activities such as the number of facilitators for debriefing, operations/technology specialists, standardized/simulated patients, and consumable items such as clinical and office supplies.
- Incorporate the costs of identified capital expenditures from the strategic plan as a budgeted line item (see criterion 1).
- Forecast for personnel roles and responsibilities, including professional development needs required to meet the SBE program's future participant outcomes, program objectives, and regulations.
  - Include workload, position and salary equity, job description, role expectations, and scope of practice in the forecast.

○ Report the correlation of the impact of SBE program metrics on the organization's costs and/or savings from, at a minimum, the following domains:[49-52]
- Educational effectiveness
- Educational efficiency
- Resource management
- Patient safety
- Quality of care
- New employment efficacy

Criterion 5: Use a formal process for effective systems integration.

Required Elements:

○ Direct the program's simulation activities by the strategic needs of the larger organization.[27]

○ Develop the program's mission and/or vision along with written policies and procedures to articulate the role of the SBE program in relation to other stakeholders and the larger organization or region.

○ Communicate with stakeholders about how the SBE program's mission, vision, and goals align with the overall improvement of health care education and eventually health care delivery.[27,53-55]
- SBE programs have access to and incorporate identified key performance indicators to improve simulation-based learning experiences related to outcomes.[53]

○ Actively participate and collaborate in bidirectional initiatives across organizations, contributing to the improvement of participant, health care, and/or program outcomes.[27]
- The SBE program is used by various groups to address quality, patient safety, interprofessional education, research, and risk management for the improvement of system activities.

○ Ensure ongoing systematic and programmatic improvement processes are in place for the SBE programs, including [27,30,53,54,56]
- Quality/performance improvement, dissemination, and sustainability plan(s) exist and are used

- Clearly defined metrics using consistent data collection methods
- Appropriate resources (e.g., human factors, systems engineering, psychometric, and informatics) are available to meet expected program goals.

Criterion 6: Create policies and procedures to support and sustain the SBE program.

Required Elements:

- Consider and incorporate human resource factors regardless of employment status (e.g., full-time, adjunct, volunteer, student, etc.) such as
  - Workload and compensation equity are supported by the funding entity
  - Comparable educational, credentialing, and competency requirements for the role(s) undertaken
  - Planned and unplanned personnel leave are accounted for
  - Ongoing competency and proficiency validation for all SBE personnel[2]
  - An expectation that applicable standards of best practice for simulation will be followed[2]
- Identify how prior experience and nonformal training are recognized, appraised, and viewed while making employment and advancement decisions.
- Define data collection, storage, access, destruction, and reporting processes such that it is performed and aligns with institutional and accrediting bodies' expectations.
- Describe safe management of supplies including how they are handled, secured, stored, and maintained. These may be supported by institutional, national, international, or other regulatory protocols as appropriate.[27] Examples include
  - Solvents
  - Moulage supplies and materials
  - Expired and simulated medications
  - Defibrillators
  - Sharp containers
- Provide safety information for any chemical, medication, or other hazardous supplies and how they can be accessed by personnel.
  - For example—In the United States, Safety Data Sheets [57] for applicable materials, or in Canada, Workplace Hazardous Materials Information System (WHMIS).[58]
- Create clear guidelines that
  - Address duplicated, conflicting, and/or confusing requests.
  - Prioritize the use of space, equipment, and personnel.
  - Establish deadlines for scheduling based on prioritization of use.
  - Identify reorder points for consumable resources.
- Specify guidelines for equipment storage, locations, security, and access, including
  - Use and maintenance of simulation equipment
  - Planned downtime and periodic maintenance schedules
  - How user and system manuals for simulation equipment are to be maintained and organized
- Establish audiovisual capture, retention, and use policies
  - Policies may be variable by the type of activity and planned use but must be consistent and delineated
  - Confidentiality
  - Articulate psychological safety and learner expectations for learning activities
  - Establish contingency plans for unanticipated events, participant accommodations, or simulator downtime, etc.

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About the International Nursing Association for Clinical Simulation and Learning

The International Nursing Association for Clinical Simulation and Learning (INACSL) is the global leader in transforming practice to improve patient safety through excellence in health care simulation. INACSL is a community of practice for simulation where members can network with simulation leaders, educators, researchers, and industry partners. INACSL also provides the INACSL Standards of Best Practice: Simulation℠, an evidence-based framework to guide simulation design, implementation, debriefing, evaluation, and research.