Challenges of Implementing Healthcare Simulation in Community Colleges

A White Paper presented to the Society for Simulation in Healthcare and the International Nursing Association for Clinical Simulation and Learning by the Nursing Section Community College Workgroup
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Nursing Section Community College Workgroup Members

Melody Bethards, MSN, RN, CNE, CHSE
Suzy Cook, MN, RN, CHSE, CNE
Cecilia Bidigare, MSN, RN, CNE, CHSE
Leslie Catron, M.A.ED, BSN, RN, FAHCEP, CHSE
Heidi Clippard, RN, MSN, CHSE
Karyn German, MSN, RN
Wendy Grbach, MSN, RN, CLNC, CHSE
Jennifer Gable, MSN, RN, CCRN
Julie Martin, RN, MSN, CHSE
Marie C. Siegel, MSN, RN

The members of the Community College Workgroup would like to thank the Society for Simulation in Healthcare and the International Nursing Association for Clinical Simulation and Learning for their support for this project. We would specifically like to thank Ashley Grossman for all the work she did to make the survey a reality.

January 2018
Table of Contents

Executive Summary ........................................... 1
Introduction .................................................. 3
Survey Results ................................................ 4
    Survey Participants ....................................... 4
    Participants in Simulation .............................. 4
    Faculty Roles ............................................ 7
    Utilization ............................................. 8
Staffing ....................................................... 9
Education, Orientation, and Support ....................... 10
Funding Sources ............................................ 11
Funding Constraints ....................................... 12
Funding Allocation Overall ................................. 13
Funding for Supplies/Equipment ........................... 14
Additional Resource Topics Identified ................. 17
Research/Scholarship ..................................... 18
    Identification of Significant Challenges .......... 20
Recommendations .......................................... 23
Summary ..................................................... 23
References .................................................. 25
Executive Summary

The use of simulation has been an integral part of healthcare education in community colleges for many years. Applying the International Nursing Association for Clinical Simulation and Learning (INACSL) Standards of Best Practice: Simulation℠ to implement high-fidelity simulation education experiences into healthcare programs presents unique challenges for community college healthcare simulation educators.

Community colleges serve diverse student populations attending healthcare programs that vary from a few weeks to two or three years supported by limited resources and variable funding streams. Community college educators may lack support to conduct research and participate in other scholarship activities. A Society for Simulation in Healthcare (SSH) Nursing Section workgroup in collaboration with INACSL sought to explore the implementation of healthcare simulation in community colleges and identify any challenges or barriers to implementation.

This workgroup surveyed 109 community college healthcare simulation educators from 82 different community colleges in 32 North American states and four Canadian provinces. This report explores the results of the survey; comparison of the survey results to related literature; and recommendations for how SSH and INACSL can support members who are community college healthcare simulation educators.

Recommendations:

Results of the survey support the supposition that community college healthcare simulation educators face unique challenges related to learner population, staffing/support, funding, and support for scholarship/research.

Community college healthcare simulation educators facilitate simulation learning experiences for a wide variety of health and public services programs as well as continuing education courses for health and public service occupations. SSH and INACSL can provide support for their members who are community college healthcare simulation educators in this area by offering courses at their annual conference, and/or regional meetings which focus on developing simulation scenarios for certificate programs, continuing education, and learners from varying health and public service programs/occupations.
Healthcare simulation in community colleges is mostly funded by variable annual budgets. Sources of funding for community college healthcare simulation programs include department budgets, institution budgets, outside grants, in-kind equipment grants, and private donors. Most community college simulation labs/centers share space and resources with other programs. The majority of community college healthcare simulation educators also teach didactic, laboratory, and/or traditional clinical courses.

SSH and INACSL can provide support for their members who are community college healthcare simulation educators in this area by offering courses at conferences or regional meetings that focus on:

- Soft funds and flexible budgets,
- Facilitating simulation in smaller centers/labs,
- Writing proposals in support of dedicated simulation staff/faculty.

There are limited opportunities and support for community college healthcare simulation educators to participate in simulation related research and scholarship. Because of this, many community college healthcare simulation educators conduct informal research. SSH and INACSL can provide support for their members who are community college healthcare simulation educators in this area by:

- Accepting submissions of informal (action) research abstracts for conferences/research forums,
- Encouraging submission of informal (action) research for publication consideration in each of the organization’s respective journals.
- Supporting collaborative research opportunities between society members from universities and society members from community colleges.

SSH and INACSL can further support community college healthcare simulation educators by facilitating the development of a Community College Affinity or Interest Group. An affinity or Interest group would provide support to community college healthcare simulation educators who are not currently members of SSH due to monetary constraints.
Introduction

Purpose

The purpose of this White Paper is to disseminate the findings of an international survey conducted by the Society for Simulation in Healthcare (SSH) Nursing Section Community College Collaborative Workgroup and the International Nursing Association for Clinical Simulation and Learning (INACSL) exploring the challenges of implementing healthcare simulation in community colleges.

Specific goals of this report include the following:
1. Explore challenges facing community college healthcare simulation educators.
2. Identify barriers to implementing healthcare simulation in a community college.
3. Articulate opportunities for SSH and INACSL to support community college healthcare simulation educators.

This report summarizes the results of a survey of a sampling of community college healthcare simulation educators in the United States and Canada. Survey results are compared to current evidence related to implementing healthcare simulation in community colleges. Opportunities for supporting community college healthcare simulation educators are recommended.

Background

Community college healthcare educators have practiced simulation as an educational strategy for decades. Prior to the advent of technology, instructional resources were limited. Students learned psychomotor skills by practicing on each other, with static manikins or as they cared for patients during clinical rotations. Currently, simulation has a greater presence in the community college healthcare educator’s toolbox having more sophisticated simulators housed in realistic environments. Community college administrators, faculty and students’ expectations to incorporate high-fidelity simulation into healthcare education has heightened over the last ten years. This ever-changing world of simulation comes with many benefits and challenges.

The expectation of implementing simulation presents unique challenges for community college healthcare programs. Program budgets are often limited and funding streams variable. Community college nursing programs face additional challenges. Along with the greater presence of simulation, the National Council of the State Boards of Nursing (NCSBN) study published in October 2015 (Hayden, et al., 2015) found simulation as rigorous and beneficial for learning nursing practice as experiences in clinical settings. In 2016 the NCSBN published guidelines for simulation in prelicensure nursing programs (Alexander, et al.) which many State Boards of Nursing have adopted.
At IMSH 2016, three members of the SSH Nursing Section identified similar challenges implementing simulation in their community colleges. From that conversation, an SSH Nursing Section Collaborative workgroup was developed with the purpose of exploring the unique challenges faced by community college healthcare simulation educators in collaboration with INACSL. The group was interested in knowing if other community college healthcare simulation educators shared these same challenges or faced additional challenges. The group identified recommendations for how SSH and INACSL could better support their members who are community college healthcare simulation educators.

The workgroup set a long-term goal of submitting a white paper to SSH and INACSL outlining the challenges unique to implementing simulation in a community college setting and how the societies can better support their members who are community college healthcare simulation educators. To achieve this goal, the group, with the support of SSH and INACSL, developed and implemented a survey of community college healthcare simulation educators. Participants identified challenges faced by community college simulation healthcare educators within four categories: Support for Research, Support for Scholarship, Student Population, and Funding Streams.

Survey Results

Survey Participants

Survey responses came from 32 North American states and four Canadian provinces, representing 82 different community colleges among the 109 respondents. The participants represent the wide range of roles and responsibilities of community college healthcare simulation educators. More than half (56.9%) of the respondents were full-time faculty, and many (43.1%) were simulation coordinators. Other positions included directors, department chairs, technicians, coordinators, adjunct faculty, and staff. As with the positions, there were a variety of responsibilities identified among the respondents. More than half were responsible for classroom/online instruction and/or laboratory instruction (55%). The majority of the respondents have a Master’s degree (74%), and most (79%) indicated they are nurses. The percentage of work time used in the planning and delivery of simulation varied with a range 4% to 100%, mean 55%, and median 50%. The question did not ask the number of hours worked, rather than the number of hours in simulation. However, the number of hours reported ranged from 1 to 70 with comments referring to variability related to different school terms, different weeks in the term, and student curriculum.

Participants in Simulation

The majority of learners participating in simulation at community colleges are internal customers from programs within the college. The highest number of participants are from nursing programs (97.2%), followed by emergency medicine programs (59.6%),
respiratory care programs, (41.3%) and dental health sciences programs (32.1%). Table 1 describes the variety of internal customers that utilize simulation in the community colleges. Participants were given the opportunity to expand on their answers, and the continuing theme of healthcare, primarily nursing education, was apparent for orientations or continuing education. Several respondents shared their simulation center with law enforcement, phlebotomy, and social services learners. Overall, many respondents indicated the wide-reaching use of simulation primarily in the healthcare disciplines. Overwhelmingly community colleges report that simulation is integrated into their healthcare programs. See Figure 1 for more information.

<table>
<thead>
<tr>
<th>Program</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing</td>
<td>97.2%</td>
</tr>
<tr>
<td>Emergency Medical Services</td>
<td>59.6%</td>
</tr>
<tr>
<td>Respiratory Care</td>
<td>41.3%</td>
</tr>
<tr>
<td>Dental Health Sciences</td>
<td>32.1%</td>
</tr>
<tr>
<td>Radiology Technology</td>
<td>26.6%</td>
</tr>
<tr>
<td>Surgical Technology</td>
<td>22.9%</td>
</tr>
<tr>
<td>Physical Therapy Assistant</td>
<td>17.4%</td>
</tr>
<tr>
<td>Medical Assisting Technology</td>
<td>17.4%</td>
</tr>
<tr>
<td>Occupational Therapy Assistant</td>
<td>15.6%</td>
</tr>
<tr>
<td>Medical Laboratory Technician</td>
<td>11.9%</td>
</tr>
<tr>
<td>Pharmacy Technology</td>
<td>9.2%</td>
</tr>
<tr>
<td>Human Services and Behavior Health</td>
<td>4.6%</td>
</tr>
<tr>
<td>EKG/EEG Technician</td>
<td>4.6%</td>
</tr>
<tr>
<td>Health Information Technology</td>
<td>4.6%</td>
</tr>
<tr>
<td>Dietetics and Nutrition</td>
<td>1.8%</td>
</tr>
<tr>
<td>Optometric Tech</td>
<td>0.9%</td>
</tr>
<tr>
<td>Other</td>
<td>24.8%</td>
</tr>
</tbody>
</table>
External customers most often were hospitals (47.9%). Prehospital programs focused on public safety: Fire/rescue (28.8%) and EMS (20.5%), for a combined 49.3% of total responses. Respondents noted that other academic institutions share resources with a center 23% of the time. Table 2 identifies the different external customers using the community college’s simulation resources. A few respondents had just opened centers or were prohibited from extending service outside of the Simulation Center program due to grant funding restrictions.

Table 2

<table>
<thead>
<tr>
<th>External Customers</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>47.9%</td>
</tr>
<tr>
<td>Fire/Rescue</td>
<td>28.8%</td>
</tr>
<tr>
<td>Others schools or colleges</td>
<td>23.3%</td>
</tr>
<tr>
<td>Emergency Management</td>
<td>20.5%</td>
</tr>
<tr>
<td>Long-term Care Facilities</td>
<td>9.6%</td>
</tr>
<tr>
<td>Police</td>
<td>6.8%</td>
</tr>
<tr>
<td>Hospice</td>
<td>6.8%</td>
</tr>
<tr>
<td>Healthcare Clinics/Healthcare Provider Offices</td>
<td>4.1%</td>
</tr>
<tr>
<td>Military</td>
<td>2.7%</td>
</tr>
<tr>
<td>Home Health Care</td>
<td>2.7%</td>
</tr>
<tr>
<td>Other</td>
<td>43.8%</td>
</tr>
</tbody>
</table>

Figure 1  Simulation Implementation in Community Colleges

- Simulation is a program by itself (students register for a simulation course)
- Simulation is incorporated into healthcare programs
- Other (outside users only, open sim lab not integrated into courses, IPE only)
Faculty Roles

Full-time faculty participants reported varying degrees of simulation involvement and related compensation. Faculty roles incorporated clinical instruction, clinical time, skills laboratory teaching, and many related responsibilities. Over half of the responding faculty members (61%) carry a full time load each term and spend additional time in simulation activities. Some faculty members (32%) receive release time for simulation activities while others indicated simulation was their primary responsibility. Figure 2 shows the varying types of compensation full-time faculty respondents received to facilitate simulation learning experiences.

Table 3
Time that extends beyond contracted hours to set-up, break-down, write scenarios, create checklists, and evaluate.

<table>
<thead>
<tr>
<th>Hours per week</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 hours per week</td>
<td>38.1%</td>
</tr>
<tr>
<td>4-7 hours per week</td>
<td>26.8%</td>
</tr>
<tr>
<td>7-10 hours per week</td>
<td>15.5%</td>
</tr>
<tr>
<td>More than 10 hours per week</td>
<td>19.6%</td>
</tr>
</tbody>
</table>
Utilization

Participants incorporate simulation as a component of or substitute for clinical time (77%). Faculty use simulation to facilitate learning during designated lab (68%) and classroom (46%) times.

The NCSBN National Simulation Study found substantial evidence to support the substitution of high-quality simulation experiences for up to 50% of clinical hours (Alexander et al., 2015). This is a strategy used by 44.9% of participants who replace 11-30% of clinical hours with simulation. Most (75%) replace a full clinical day with simulation, usually due to a lack of clinical opportunities. Participants identified several other reasons to use simulation in place of clinical including the lack of clinical sites, lack of specific patient populations, and the preference for simulation experiences. Simulation was also used when clinical faculty were absent, during low census, and when clinical was canceled by healthcare agencies. Others use simulation to meet clinical course outcomes not obtained during clinical experiences. Figure 3 shows the percent of simulation used in lieu of traditional clinical experiences.

![Figure 3 Percent of Simulation used in lieu of traditional clinical experiences](image-url)
Calculating the use of simulation to replace clinical varied considerably. Most replace one hour of clinical with one hour of simulation (52.1%). Other programs substitute one hour of simulation with 1.5 to 2 clinical hours (36.5%). In some states, clinical time cannot be replaced by simulation, as identified by 11.5% of participants.

**Staffing**

Most in the sample self-identified as simulation coordinators (70.4%). Of those, 26.8% were either part-time employees or had additional responsibilities for class or clinical. Some number of participants considered themselves simulation coordinators without a formal title.

Participants report a variety of staff involved in orchestrating simulation experiences at their institutions. In addition, various staff and personnel may be utilized as written in the “other” category describing simulation staff. Faculty are identified as the core personnel for simulation success, and may additionally be responsible for developing other personnel into the simulation role. Figure 4 shows the different roles that respondents use to staff simulation learning experiences.
Education, Orientation, and Support

Community college participants reported that faculty/staff are provided either formal and/or informal education on the use of simulation teaching methodologies, with only 3.9% stating that they lack structured training programs. Furthermore, 40.2% of the training is formal (i.e., classes, workshops, certifications), while 86.3% of the training is provided informally.

Community college healthcare simulation educators reported that 51.4% of simulation coordinators attend formal education sessions at least one to two times per year, representing the largest group. Approximately 20% indicated that formal training is offered on an “as needed” basis with the acquisition of new equipment and/or the allocation of funding for training. The remaining categories represent 14.3% of respondents reporting that formal education is not scheduled regularly, while 11.4% indicated that they are unsure about the frequency of the formal education. Only 2.9% reported that training is received quarterly.

Analysis of responses regarding pre-simulation education/orientation for simulation instructors found that 31.7% require completion of pre-simulation training, 29.7% prefer instructors have prior training/education, and 25.7% indicated that pre-simulation education is in development. Only 12.9% of the respondents stated that this type of training is not required.

When addressing pre-simulation education/orientation for students, 62.7% indicated that pre-simulation training for students is required. This type of training is preferred by 9.8%, in development for 17.6%, and is not required for 9.8%. Figure 5 shows the percent of required pre-simulation education for instructors and learners at the community colleges.

Figure 5 Pre-simulation education/training for instructors and learners

![Pie chart showing the percent of required pre-simulation education for instructors and learners.](chart)
Funding Sources

Sufficient funding resources are crucial for the successful operation of a simulation center. Community colleges experience limited financial resources to support ongoing simulation program development. Kardong-Edgren, et al., (2012) expressed concern that many pre-licensure nursing programs acquire equipment and simulation scenarios in the absence of strategies to support ongoing faculty training and financial support for the expansion of their simulation programs.

Major funding sources for simulation programs in community colleges are department budgets (78.1%), institution budgets (59.4%), and outside grants (51%). Many community college programs benefit from in-kind equipment grants (22.9%) and private donors (20.8%). Only 52.6% of institutions have dedicated funding or capital streams for simulation. Figure 6 shows the major sources of funding identified by respondents.

Federal (48.4%) and state (47.6%) government grants account for the predominance of funds allocated for capital equipment for community college simulation labs. Survey respondents identify that most grant sources are college-sponsored/foundation grants (45.2%) and state (Perkins) grants (43.8%).

To offset operating costs, 56.3% share simulation equipment, space, and/or staff with other healthcare programs offered at their institution. Programs that share resources are mainly EMS (67.3%) and Nursing (61.8%), followed by Respiratory Care (45.5%) and Radiology Technology (29.1%). Other programs sharing resources are Surgical Tech (25.5%), and Occupational Therapy Technician (21.8%). Table 4 shows the different programs that share simulation space at the community colleges.
Table 4

Programs that share community college simulation space

<table>
<thead>
<tr>
<th>Programs</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMS</td>
<td>67.3%</td>
</tr>
<tr>
<td>Nursing</td>
<td>61.8%</td>
</tr>
<tr>
<td>Respiratory Care</td>
<td>45.5%</td>
</tr>
<tr>
<td>Radiology Tech</td>
<td>29.1%</td>
</tr>
<tr>
<td>Surgical Tech</td>
<td>25.5%</td>
</tr>
<tr>
<td>Dental</td>
<td>23.6%</td>
</tr>
<tr>
<td>OT Assistant</td>
<td>21.8%</td>
</tr>
<tr>
<td>Other (PT assist, cont. ed, sleep tech, etc.)</td>
<td>21.8%</td>
</tr>
<tr>
<td>Medical Lab Tech</td>
<td>12.7%</td>
</tr>
<tr>
<td>Pharmacy Technology</td>
<td>7.3%</td>
</tr>
<tr>
<td>Optometric Tech</td>
<td>3.6%</td>
</tr>
<tr>
<td>EKG/EEG Technician</td>
<td>3.6%</td>
</tr>
<tr>
<td>Dietetics and Nutrition</td>
<td>3.6%</td>
</tr>
<tr>
<td>Human Services</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

Funding Constraints

The largest constraint for funding for a simulation program was variable annual budgets with 51.9% of respondents choosing the option. Tax-supported college funding, lack of support from institutional leaders, the absence of hard data supporting simulation program value, and lack of research data to justify operational needs were all in the 20% range of respondents’ perceived constraints. Nineteen percent of respondents provided various constraints, such as limited time to write for grants, no grant writer on staff, no individual simulation budget, and limited funds for the college. Figure 7 shows the major funding constraints identified by respondents.
Funding Allocation Overall

In 93% of colleges, funds benefit manikins and peripheral hardware purchase and maintenance. Approximately 57% of respondents selected technology infrastructure and equipment as use for funds in their program. About 45% of respondents identified funds in their program were used for software, training costs, and medical consumables. The “other” choice was only selected by 8% of respondents. Free-text responses include preventative maintenance agreements, capital expense projects, and task-trainers. Figure 8 shows the distribution of funds identified by respondents.

Of the respondents, 76% do have input in their institution’s fund allocation. The top two determiners of equipment purchase priorities were the simulation coordinator and an
administrator/dean. Faculty were also influential in determining priorities for purchases in college simulation programs. Eleven respondents chose “other” and included simulation committees, lab staff/coordinator, director of nursing, and a joint committee of the listed choices for this question.

Only 19% of the respondents have an established business plan for their simulation. Only 25% of respondents have a plan for financial sustainability. See Figure 9 for more information. In addition over 90% of respondents do not have funds earmarked for further research opportunities.

The INASCL Standards of Best Practice: SimulationSM: Operations (2017) identifies strategic planning and stainability in all of the criteria to meet the standard. Sustainability plans are imperative for programs to deliver high-quality simulation learning experiences (Bajaj, Meguerdichian, Pohlman, & Walker, 2017). The NCSBN Simulation Guidelines for Pre-licensure Nursing Programs (Alexander, et al., 2016) recommends that program administrators develop sustainability plans. This can be especially challenging for community colleges that are subject to fluctuating state budgetary procedures (Baime, & Baum, 2016).

**Funding for Supplies/Equipment**

The process of paying for the consumable and durable supplies necessary for the performance of simulation was explored along with the methods and manner of
obtaining budget a for the maintenance of equipment. Additional inquiry was made into the method simulation leaders used to estimate use of consumables used in simulation.

The respondents identified four broad areas of funding for consumable/soft supplies in community college simulation programs; 1) direct budgeting (69%), 2) institutionally based fees, such as kit fees or lab fees (21%), 3) other, inclusive of private donor funding (7%), and 4) grant funds, primarily Perkins grant monies (3%). Persons responsible for ordering these supplies was predominantly simulation/laboratory personnel (68%), 26% of respondents listed administrative personnel and 6% in the other category (included vague responses like “I do” and “don’t know”).

Supply Acquisition

Estimation of supply usage was primarily based on experience and inventory (35%), enrollment/student numbers (27%), and per simulation event (23%). Eight percent of respondents used software to estimate supplies. Three percent of respondents indicated they have no established method for determining supply usage.

The majority of respondents (53%) identified negative drawbacks to their current process for determining and obtaining supplies. Examples of negative drawbacks included reported difficulties with inventory process such as no consistent system, sometimes run out of supplies, no idea of what is being ordered, no way to determine supply needs or usage, etc. (26%). Twenty-one percent of respondents identified purchasing approval processes as being time-consuming, with lack of flexibility, need for multiple bids/quotes, and not always able to get the brand/kit requested. Fourteen percent of respondents identified unclear budgeting processes including shrinking budgets, variable budgets, and a marked fear of sustainable processes. Twelve percent identified organizational and administrative issues such as lack of clear lines of responsibility, and multiple or unclear needs. The lack of data to support requests was also listed. Faculty issues, time constraints, storage issues, and software issues were also identified as drawbacks to the way they currently determine and obtain supplies.

Twenty-eight percent of respondents identified benefits to the way they currently determine and obtain supplies. Stated benefits included having a system is important to efficient use, and one comment that listed using a ‘central supply’ with requests to be filled on an as-needed basis. Respondents also identified that using a system helped to consolidate data for planning for the next time period (semester or year) as well as provide data for administration as evidence of simulation use and need for continued financial/programmatic support.

Equipment Acquisition

Respondents noted that decision making about more expensive durable equipment purchasing (such as manikins, audio-visual/recording systems, and large supporting
equipment, such as medication administration systems, etc.) is a cooperative event. Figure 10 identifies who is responsible for determining equipment purchases at the respondents’ community colleges. Budgeting for equipment repair and maintenance was reported as departmental (28%), direct budget (20%), institutional (19%), and program level budget (11%), with warranty/grant funds, divisional funds, and others making the final 3-9%.

Benefits/Drawbacks of Current Equipment Management Process

Respondents noted benefits of equipment management processes at their institutions include repairs managed by the equipment vendor through warranties and service agreements. Solid relationship with equipment vendors, and trained support personnel to complete repairs was recommended.

Lack of a formal process, issues with funding and budget to purchase warranties/service agreement and/or hire personnel to complete repairs, amount of downtime when manikins are sent for repair, and lack of trained on-site personnel to perform preventative maintenance and repairs were identified as significant problems.

Most of the community colleges in the survey use either an external source or internal source only process. To ensure high-quality simulation outcomes, simulation programs must have a sustainable process for equipment preventative maintenance and repair that includes both external and internal sources (Watson & Campher, 2015). Policies and procedures should be in place to ensure the maintenance and repair of simulation equipment (Dongilli, Shekhter, & Gavilanes, 2015).

Maintenance

A human patient simulator and the hardware and software system to capture the session can be very costly. Maintenance of this capital expense is imperative (Watson & Campher,
From the survey responses, 68% of the respondents identified that a simulation coordinator/simulation staff or an integrated technology specialist maintains the equipment. Figure 11 shows the ways respondents manage manikin/equipment maintenance at their colleges.

![Figure 11 Simulation Maintenance](image)

**Additional Resource Topics Identified**

A number of topics emerged from the faculty responses to the question, “Are there other resource management topics that you consider important to discuss?” Several of the topics have been explored earlier in this paper; however, two themes were identified for further discussion: the cost of simulation lab staff and equipment storage.

**Simulation Staff:**

An organization’s workforce has been described as its most valuable asset, as well as its largest expense (Lazzara, Benishek, Dietz, Salas, & Adriansen, 2014). Limited resources preclude hiring dedicated simulation coordinators and technical staff. Often the largest portion of a simulation program’s budget is allocated to the costs of staffing. Palaganas, Maxworthy, Epps & Mancini (2015) estimated staffing to comprise two-thirds to three-quarters of simulation program operating costs. As such, many simulation labs are burdened with staffing issues and work overload. Adamson (2010) explored faculty simulation barriers with a survey of educators, which revealed that a disproportionate amount of funds are spent on initial investments of simulation equipment versus ongoing maintenance and support of simulation. In particular, faculty identified lack of technical support as a barrier to integrating simulation into their courses.

Simulation-related roles may be managed by one or two people, typically clinicians or educators, even in large centers. In some centers, multiple functions are handled by a few people and the system works well, while other centers recognized the need for
dedicated simulation specialists to oversee the technology functions for their simulation community (Gantt & Young, 2016). Jansen, et al., (2009) offers staffing recommendations, including hiring work-study students, inviting retired faculty and alumni members to offer assistance, and sharing regional simulation centers’ staff. The INASCL Standards of Best Practice: SimulationSM: Operations (2017) identifies the need for personnel with appropriate expertise related to simulation as a criterion to meet the standard and the 20.

**Equipment Storage:**

Simulation programs are costly investments that require consideration for space and equipment. As simulation programs expand, equipment and technology increases with subsequent need for increasing physical space. Jansen, et al. (2009) explored perceived obstacles to utilizing manikin-based simulations and revealed that lack of consideration for space/storage is detrimental to carrying out manikin-based simulations.

According to Lazzara (2014), failing to plan for simulation program growth can result in major difficulties in the future suggesting working with existing properties, and partaking of resources available in the larger community. Jansen (2009) suggests collaboration with other college departments to share space. The INASCL Standards of Best Practice: SimulationSM: Operations (2017) identifies the need to manage space as a criterion to meet the standard, and the NCSBN Simulation Guidelines for Pre-licensure Nursing Programs (Alexander, et al., 2016) recommends that programs have dedicated space for simulation education, debriefing, and storage.

**Research/Scholarship**

Research targeting simulation outcomes is integral to grow the science and art of simulation (White & Peterson, 2015). However, there is limited support for community college faculty participation in scholarly activities such as conferences, research, and publication (Braxton & Lyken-Segosebe, 2015).

**Research**

As noted earlier, respondents identified lack of research data to support simulation activities as a constraint to funding, and only 3% of colleges provide funding to support simulation related research. More than half (64%) of community college simulation faculty indicated that research is not conducted at their simulation center/laboratory. Of the respondents who do not conduct research, 52% would like to conduct research in their simulation center/laboratories. Research is conducted in less than half of the respondents’ simulation centers/laboratories. The majority of that research (28%) is
informal or action research. All respondents indicated that they have access to an IRB or a process equivalent to an IRB at their community college; however, respondents report that only 9% of formal research conducted at the community college simulation center/laboratory is not related to procurement of an advanced degree. Figure 12 shows the different types of research conducted at the respondent’s simulation center/laboratory.

The majority of community college faculty members in the survey would like to participate in research, but face barriers to this practice. According to Braxton & Lyken-Segosebe (2015), community college faculty are expected to spend the majority of their workload involved in classroom teaching with very few community colleges encouraging or supporting time for engagement in scholarship activities (Braxton & Lyken-Segosebe, 2015).

Although there is wide support and funding for research about community colleges (Center for the Study of Community Colleges, 2017), there is little support for community college faculty participation in research (Braxton & Lyken-Segosebe, 2015). There is evidence that community college faculty participate in informal (action) research but these research projects often go unpublished due to lack of support from the college or administration (Hegedorn, 2015).

**Scholarship**

All simulation faculty completing the survey belong to at least one simulation organization. Sixty-one percent of respondents who answered this question belong to only one simulation organization and thirty-nine percent belong to two or more
simulation organizations. More than half (58%) of the community college simulation faculty pay out of pocket for simulation organization memberships fees. Thirty-five percent of simulation faculty indicated that their colleges pay for the cost of membership fees and 36% reported that their community college pays part of the membership fees. See Figure 13 for more information.

Participation in scholarly activities by community college faculty is often the result of personal efforts which go unrecognized by their institution because scholarship is not expected or rewarded (Morest, 2015). Community college faculty would benefit from external support for engagement in scholarship activities such as research, publication, and involvement in professional organizations (Braxton, Doyle, & Lyken-Segosebe, 2015).

**Identification of Significant Challenges**

Implementation of simulation into the community college healthcare program curriculum is essential to provide excellent opportunities for student learning and the transferring of knowledge from theory to application (Jefferies, 2014). This transference is based on the operationalization and employment of simulation. At the end of the survey respondents were asked to identify what they saw as the most significant challenge to implementing simulation learning experiences at their college.

Issues related to staffing, funding, and support for sustainability were identified as the most a significant challenges to implementing simulation learning experiences in a community college. This includes, but was not limited to, funding for dedicated staff, adequate space/facilities, equipment maintenance, and faculty/staff training. These are critical factors for a successful healthcare simulation program (Lazzar et al., 2014). Table 6 lists challenges identified by respondents.
Table 6

Significant challenges to implementing simulation learning experiences in a community college (Respondents could identify more than one challenge)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Response Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staffing</td>
<td>49%</td>
</tr>
<tr>
<td>Financial Constraints</td>
<td>41%</td>
</tr>
<tr>
<td>Support from the college</td>
<td>25%</td>
</tr>
<tr>
<td>Space/facilities</td>
<td>14%</td>
</tr>
<tr>
<td>Equipment</td>
<td>11%</td>
</tr>
<tr>
<td>Support for research</td>
<td>7%</td>
</tr>
<tr>
<td>Meeting accreditation requirements (program, center)</td>
<td>6%</td>
</tr>
<tr>
<td>Support for Interprofessional Education</td>
<td>4%</td>
</tr>
<tr>
<td>Availability of appropriate scenarios</td>
<td>4%</td>
</tr>
<tr>
<td>Time</td>
<td>3%</td>
</tr>
</tbody>
</table>

The challenge of “staffing” was identified most by respondents (49%). “Staffing” takes into account training faculty and staff, staffing the simulation center, and ongoing staff development. This was followed by financial constraints (41%) which included lack of financial investment by the college, the expectation of grant acquisition for funding, lack of “lab” fees for students, and the expense of dedicated simulation staff. Lack of support for sustainability included lack of buy-in from college administration, faculty, and college marketing departments. Both these challenges have previously been explored in this paper.

Another challenge analyzed was scheduling simulation. Ninety-four percent (94%) of the respondents identified difficulties with scheduling simulation learning experiences. Scheduling included:

- Time to set-up and clean-up the simulation experience.
- The number of nursing students, faculty, and staff involved in the simulated activity.
- Coordination and participation between other disciplines

Respondents used a variety of personnel, priority guidelines (e.g., related to curriculum or clinical schedules), and requesting processes (request forms, calendar sharing, committees) for scheduling. Figure 14 shows how the respondents schedule simulation activities.
To schedule the simulation center’s activities, Jefferies (2014) recommends an individual or team to manage the schedule requests and processes. A policy and procedure for scheduling should include constraints or conflicts related to the following:

- Set up/clean up
- Faculty’s various roles or time commitments
- Faculty should have input
- Numbers of students
- Being transparent
- Coordination within and between disciplines
- Flexibility for clinical schedules and simulation availability (conflicting schedules)
- Last minute changes/needs.

Of the scheduling personnel, 67% of the respondent had a "simulation coordinator" included in the process. The "simulation coordinator" might be a nursing faculty member with additional workload, a simulation technician/specialist or a team of identified people to coordinate the scheduling. All of the scheduling is completed by faculty unless there was an identified simulation coordinator that was not nursing faculty. This is an additional workload for faculty unless their community college has an FTE for a simulation coordinator. This mimics many other academic simulation centers (Nehring, Lashley, 2010).
Recommendations

Results of this survey support the supposition that community college healthcare simulation educators face unique challenges related to learner population, staffing/support, funding, and support for scholarship/research. SSH and INACSL can provide support for their members who are community college healthcare simulation educators by:

- Offering courses at the annual conferences or regional meetings that focus on:
  - Developing simulation scenarios for certificate programs, continuing education, and learners from varying health and public services programs/occupations.
  - Managing soft funds and flexible budgets
  - Facilitating simulation in smaller centers/labs
  - Writing proposals in support of dedicated simulation staff/faculty.
- Accepting submissions of informal (action) research abstracts for conferences/research forums.
- Encouraging submission of informal (action research) for publication consideration in the society’s journals.
- Supporting collaborative research opportunities between society members from universities and members from community colleges.
- Supporting the development of a Community College Affinity or Interest Group.

Summary

The purpose of gathering, analyzing, and reporting the survey responses of community college healthcare simulation educators was to explore opportunities for faculty to embrace simulation as a teaching strategy to its fullest potential; thus benefiting students at the prelicensure level of their educational journey. The literature search prior to the survey along with the combined personal experiences of survey authors support the fact that funding and resources are available to support simulation at the university level. The survey workgroup endeavored to identify ways for community college healthcare simulation educators can overcome limitations and obstacles, therefore contributing to the growth and further establishment of simulation as a proven and available method of learning at all levels of education. A survey of community college healthcare simulation educators was collected with defined goals of identifying challenges and barriers specific to this group as well as to uncover and communicate opportunities to overcome obstacles.

A robust population of healthcare simulation educators from the United States and Canada responded to the fifty-four question survey. A wealth of valuable insight was gleaned from experienced educators in this rather new and innovative world of healthcare simulation education. The findings reveal that the majority of respondents
were full-time nursing faculty members who provide both lecture and simulation instruction hours. Many identified working at least one to three hours beyond their required time frame to accomplish their assigned workload. It was also determined from the replies that simulation is often used as a component of or substitute for clinical experience. The respondents overwhelmingly received their simulation training Funding sources for capital equipment, and supplies primarily came from annual budgets which fluctuate from year to year. Equipment management and maintenance plans were identified as inconsistent by most community college healthcare simulation educators. More than half of the respondents reported that they do not participate in research although many express the desire to do so. Many healthcare simulation educators are members of professional organizations and pay for at least a portion of simulation professional development.

The outcomes of this survey provide a concise list of ways that advocates for simulation may encourage and support community college healthcare simulation educators. Organizations such as SSH and INACSL have been instrumental in the growth of simulation as a proven strategy for instruction of healthcare providers to improve patient safety and outcomes. The workgroup believes that sharing the survey results will open the doors for those who may be struggling or hesitating to embark on the journey to build or improve simulation programs at all levels.
References


