Integrating Simulation into Bellevue College's Nursing Curriculum

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Background

In the summer of 2015 the Bellevue College (BC) nursing program, along with the other health sciences programs within the Health Sciences Division, moved into a newly constructed health science building. For nursing, this meant moving from an 8 bed skills lab and a small, single room simulation space to a twelve bed skills lab, an eight bed shared skills lab space and a complete simulation suite with two simulated patient rooms, a control room and two debriefing rooms. The new lab space has two high fidelity adult simulators, infant and pediatric simulators, along with several mid-fidelity simulators in the skills lab.

A robust simulation program can provide consistent learning opportunities for groups of students in a way that the less predictable clinical setting cannot (Gates, Parr, & Hughen, 2011). A 2010 National Council of State Boards of Nursing (NCSBN) survey found that many schools are turning to simulation as a way to provide students additional learning opportunities with 69% of schools surveyed reporting they used simulation to substitute for clinical learning experiences (Kardong-Edgren, Willhaus, Bennett, & Hayden, 2012). The results of a national, multi-site, longitudinal study of simulation, the NCSBN found that substituting simulation for up to 50% of students' traditional clinical experience in pre-licensure nursing programs was as effective as traditional clinical learning and did not affect National Council Licensure Examination (NCLEX) pass rates (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Six months into clinical practice, the study found that there was no significant differences in nursing practice between those groups of students (Hayden et al., 2014). These findings support the value of simulation in nursing programs, and provide evidence for the use of simulation as an adjunct to or replacement for clinical hours at BC.

Finding clinical sites is becoming more and more difficult for BC and other nursing programs in the state of Washington (Ellis, 2013). It is a challenge for students to get the rich learning experiences they require to become safe and competent nurses. In 2010, a national survey conducted by the National League for Nursing questioned over 2,300 nursing programs across the United States and found that a major barrier to clinical learning for nursing students is "lack of quality clinical sites" (Hayden et al.,

2014; Ironside & McNelis, 2010). This is also the situation at BC. Simulation is considered a viable option to supplement and replace clinical experiences in nursing education and as a result, an integration plan is necessary to expand the role of simulation at BC.

Literature Review

To develop a robust and evidence based simulation program, it is essential to look to the literature for guidance in the process. Ravert (2012) proposes a seven phase "map for success": team formation, analysis, develop a plan for implementation, development of resources, implement the plan, evaluate and plan revisions/implement revisions. Taplay, Jack, Baxter, Eva, and Lynn (2014), through their grounded theory study, developed a seven-phase process for incorporating simulation into undergraduate nursing programs. The seven phases the authors presented were: securing resources, leaders working in tandem, "getting it out of the box", learning about simulation and its potential for teaching, finding a fit, trialing the equipment, and integrating into the curriculum (Taplay et al., 2014).

Between these sources a process emerges that synthesizes both the recommendations of Ravert and the findings of Taplay, et al's research. First is securing resources, which includes both obtaining the equipment and the recruitment of faculty and staff to serve on the simulation team. A part of that includes training faculty in simulation best practices and evidence based debriefing frameworks (NLN Board of Governors, 2015). The team then has a variety of responsibilities in developing and implementing the simulation plan. First it is necessary to analyze the program's curriculum and look for gaps that can be filled by simulation (Ravert, 2012). The simulations should be selected to support overall student learning outcomes of the program (NLN Board of Governors, 2015). At this time, the team must also become familiar with the program's equipment and its capabilities in order to maximize the potential of the technology (Taplay et al., 2014). Implementation should be in phases, quarter by quarter, allowing for evaluation of processes along the way and revisions and improvements to be made as necessary (Ravert, 2012).

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Integration Plan for Bellevue College

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Resources

Equipment.

The majority of the equipment is already purchased for the simulation program and is in the process of being installed. Further research into needed equipment and supplies will ongoing (Taplay et al., 2014). The building and the new lab is set up for simulation, so there are no major needs for construction or changes to the building. The greatest need is for additional staff to run the simulators and provide assistance with set up and break down of equipment for scenarios. The program requires administrative by-in for creating and staffing a sim-tech position. The simulation team will work with staff from the campus information technology services, especially as the A/V system and other network systems are being installed.

Faculty.

The most important resource for a simulation program is the simulation team. BC will develop a simulation team, beginning with a "simulation champion" or leader (NLN Board of Governors, 2015; Ravert, 2012, p. 78) . Support from nursing administration is necessary in development of the role of simulation leader (Taplay et al., 2014).   This team will include the nursing administrator (Associate Dean) and a combination of full time faculty and part time/clinical faculty.

 BC faculty are enthusiastic about the use of simulation and administration is pushing strongly for it to be integrated into the program, however faculty require training to be competent in best practices and debrief techniques. The Standards of Best Practice: Simulation established by The International Nursing Association for Clinical Simulation & Learning (INACSL) provide evidence based guidelines for high quality simulation programs and specifically include Facilitator-Proficiency requirements (Ackermann et al., 2013). These guidelines will be used to ensure faculty approach simulation consistently and ensure simulation team faculty will receive training in simulation best practices and debriefing frameworks.

The simulation program will research and adopt an operating model. Ravert (2012) offers a four different models. The ideal model for BC would include a simulation champion, who works with content experts and a core simulation team to develop and implement simulations (Ravert, 2012).

Analysis

Equipment.

The simulation team will review current equipment and its capabilities including the audio visual systems, adult simulators (both high and mid fidelity) and determine the appropriate plan of use of these items (Ravert, 2012). It will be necessary to provide training to faculty and allow time to for the simulation team to experiment and become familiar with the capabilities of the technology (Taplay et al., 2014). As part of this process, the team will also identify any additional needs and support administration in pursuing funding for those items (Ravert, 2012). One area of need that is currently becoming an issue at BC is maternal clinical placements. BC does not have a birthing simulator, so the simulation team will provide recommendations to the nursing administrator about equipment that might help address this clinical gap.

Curriculum review.

The simulation team will review the program curriculum and look for gaps which simulations could help fill. It is crucial that the team meet with faculty (clinical and full time) and receive input from the subject matter experts to determine at what point students will have simulation. The simulation experiences will support the learning outcomes of each quarter, and must be progressive and build on previously learned content. The simulation team will also develop or adopt a template that addresses the essential elements of a clinical scenario in a standardized manner (Ackermann et al., 2013; Waxman, 2010) .

Implementation

Initial plan.

The program will begin with the use of preprogrammed simulations initially, then move to developing custom simulations or adapting current simulations to meet learning outcomes. For the first year, the program will use current simulations that are in the program and begin to bring the simulation team faculty on board as facilitators. Wolfgram and Quinn (2012) provide an example of how to select simulations that support the learning needs of each semester – starting with basic assessment and moving towards more a complex scenario that allows the student to prepare for a graded capstone project in the

sim lab. Another example is Howard, Englert, Kameg, and Perozzi's (2011) study in which they integrated simulation into each course and measured the student and faculty perceptions of the effectiveness of simulation. These are both good examples of the way to approach integrating simulation into curriculum and can be used as a guideline for the BC program. Curriculum maps and blueprints should be used when determining where to include simulation in courses and should use applicable teaching/learning theories and a framework as determined by the simulation team (NLN Board of Governors, 2015). See appendix A for an example blue print that uses the courses of BC's nursing program.

Long term plan.

Beyond the initial first year, the simulation team will develop a five year plan with the goal of becoming an accredited simulation center using SSH criteria (see appendix B for proposed draft of the five year plan). Those criteria address five standards: core, assessment, research, teaching/education, and systems integration and can be used as a guideline for future planning and development of the program (Society for Simulation in Healthcare, 2015). Another area for expansion at BC is mental health nursing, and future development might include the creation of a standardized patient program to meet program needs for mental health learning experiences. The simulation team should also work to involve community stakeholders into the use of the center and explore interdisciplinary simulation activities.

Evaluation

Tools.

The simulation team will research and select valid and reliable evaluation tools that BC will use to measure the effectiveness of the simulations and of the faculty teaching with simulation. The team will select instruments are appropriate for the BC setting and the program needs (Adamson, Kardong-Edgren, & Willhaus, 2013). The team should also be constantly evaluating the implementation progress of the integration plan and making changes as needed. In addition, the team will need to consider if high stakes simulations are appropriate for this program. While there are challenges with using simulation for high

stakes evaluation, many programs are using it to identify students who are not demonstrating proficiency and provide remediation and personal learning plans for improvement (Rutherford-Hemming, Kardong-Edgren, Gore, Ravert, & Rizzolo, 2014).

Conclusion

Expanding a simulation program requires more than just a shiny new building and expensive technology, although that is a crucial start. Bellevue College has a big job ahead to supplement the learning needs of the students and expand its simulation program. With a solid plan and a dedicated team, the future of the simulation program for BC will include full utilization of available resources and a robust learning experience for students.

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Appendix A
Integrating Simulation into Bellevue College's ADN Program- DRAFT
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N100- HANDS ON INTRO TO SIMMAN

Setting: After students have completed their assessment lectures and skills testing (after the 4th week) expose the students to SimMan for the first time. 2-3 clinical groups attend class at a time. 4 hours required for lecture and activity.

Activity: In clinical groups students assess SimMan. Groups not working with SimMan can also practice assessment on Vital Sims in the lab with clinical faculty and document. Sim Man will demonstrate some changes in vital signs and students will be expected to identify them and respond appropriately

Debrief: Informal debrief "on the fly" discussing the equipment, working with Sim Man and any identified changes in patient status.

Time: Scenario should not last more than 30 minutes per clinical group, debrief no more than 10 minutes. One clinical group at a time will work with slim man in small groups of 2-3, taking 5 mins to assess sim man, taking turns listening, etc.

Learning Objectives:

Students demonstrate assessment skills and begin to recognize abnormal findings

Students are exposed to SimMan's functions and learn how to work with the Vital Sims and SimMan

Resources needed:

Staff and faculty to run the simulator tutorial and facilitate debriefing

Sim Man and Vital Sims set up with some abnormal findings- skin breakdown, crackles, etc…

Vital Sims set up with heart/lung/bowel tones, BP cuffs, etc.

N101-MERGING SKILLS, ASSESSMENT AND SIMULATION

Setting: Additional lab days for students in clinical groups. Simulation will require 4 hours per clinical group . No more than 7-8 students in a group if possible.

Activity: Two simulations will be run in one (4 hour) block- the clinical group will split in half, with half the group participating in the simulation, the other half observing. Then after debrief, roles will be swapped, so all students have an opportunity to participate in a simulation. Use only the same two preprogrammed scenario on each sim day (students will have to sign a confidentiality agreement). Students will be provided with some prep information in advance (usually just a basic report of the patient and some general info about simulation). Elements of communication, SBAR, and calling a physician should be addressed.

Simulation will require assessment and intervention skills. Care of post op patients, cardiac patients and other types of patients that reflect the elements learned in this quarter. Student will be expected to demonstrate critical thinking in response to assessment findings and prioritization of care. Focus will also include basic patient safety issues such as identification, safe medication assessment and the ability to identify a critical patient situation.

Time: Initial review to simulation, description of roles, etc will last 10 minutes.Scenario usually lasts about 20-25 minutes. Debrief will last 40 minutes.

Debrief: To immediately follow scenario using best practices.

Learning Objectives:

Scenario specific objectives (ie: identify s/s infected wound or possible sepsis, post op complication, etc)

Students demonstrate ability to prioritize tasks and patient care

Students demonstrate ability to perform a skill in a more realistic, possibly distracting environment

Resources needed:

Sim Tech

Faculty Facilitator to assist in simulation, serve as physician/ARNP of patient (answer phone calls as needed, for example) and to guide students and provide prompts as needed and facilitate debriefing.

Sim man set up for specific scenario

Equipment and supplies needed specific to the scenario

N102- ADVANCING SKILLS AND UNDERSTANDING

Setting: Additional lab days for students in clinical groups. Simulation will require 4 hours per clinical group. No more than 7-8 students in a group if possible.

Activity: Two simulations will be run that reflect recent lecture material. Depending on timing, simulation could be pt with GI disease, respiratory or acid base (ex: dehydration or DKA) issues. Focus will be on nursing care of a patient with a specific diagnosis. Two simulations will be run in one (4 hour) block- the clinical group will split in half, with half the group participating in the simulation, the other half observing. Then after debrief, roles will be swapped, so all students have an opportunity to participate in a simulation. Use the same two preprogrammed scenario on each sim day (students will have to sign a confidentiality agreement). Students will be provided with pre-brief information in advance (including a basic report of the patient and some general info about simulation). Elements of communication, SBAR, and calling a physician should be addressed.

Time: Initial review to simulation, description of roles, etc will last 10 minutes.Scenario usually lasts about 20-25 minutes. Debrief will last 40 minutes.

Debrief: To immediately follow scenario using best practices.

Will discuss both observations made by students engaged in the simulation, but also those assigned specific observer roles. Will discuss any procedures/skills performed, assessment skills and group dynamic issues. Discussion will also focus on the disease process, and reinforce previous learning about the particular disease process the sim patient was experiencing.

Learning Objectives:

Students will demonstrate specific objectives to the scenario- ie, recognition of the specific disease process, appropriate interventions, assessment and treatment of a patient with the specific condition.

Resources Needed:

Sim Tech

Faculty Facilitator to assist in simulation, serve as physician/ARNP of patient (answer phone calls as needed, for example) and to guide students and provide prompts as needed and facilitate debriefing.

Sim man set up for specific scenario

Equipment and supplies needed specific to the scenario

N222- PUTTING IT ALL TOGETHER AND MAKING IT REAL

Setting: Lab days for students in clinical groups. Simulation will require 4 hours per clinical group. No more than 7-8 students in a group if possible.

Activity: Two simulations will be run in one (4 hour) block- the clinical group will split in half, with half the group participating in the simulation, the other half observing. Then after debrief, roles will be swapped, so all students have an opportunity to participate in a simulation. Will use only the same two preprogrammed scenario on each sim day (students will have to sign a confidentiality agreement). Students will be provided with pre-brief information in advance (including a basic report of the patient and some general info about simulation). Elements of communication, SBAR, and calling a physician should be addressed in simulation.

Time: Initial review to simulation, description of roles, etc will last 10 minutes. Scenario usually lasts about 20-25 minutes. Debrief will last 40 minutes.

Debrief: To immediately follow scenario using best practices. Will discuss both observations made by students engaged in the simulation, but also those assigned specific observer roles. Will discuss any procedures/skills performed, assessment skills and group dynamic issues. Focus will be on more critical thinking issues, decision making under pressure, communication, SBAR, calling a physician and nursing scope of practice issues.

Learning Objectives:

Students will demonstrate insight to their own role in group dynamics and communication (SBAR, calling physician, delegating, etc).

Students will demonstrate awareness of their own limitations and strengths in a patient care situation, focusing on prioritization, teamwork and decision making under pressure.

Students will be able to objectively assess their peer's performance and non-judgmentally and non-threateningly provide feedback; additionally, students will be receptive in a non-defensive manner to constructive criticism from their peers.

Resources needed:

      Sim Tech

      Faculty Facilitator to assist in simulation, serve as physician/ARNP of patient (answer phone calls as needed, for example) and to guide students and provide prompts as needed and facilitate debriefing.

      Sim man set up for specific scenario

      Equipment and supplies needed specific to the scenario

N220 PEDATRIC SIMULATION: APPLICATION OF KNOWLEDGE

Setting: Lab days for students in clinical groups. Simulation will require 2 hours per clinical group. No more than 7 students in a group if possible.

Activity: Two simulations will be run in one (4 hour) block- the clinical group will split in half, with half the group participating in the simulation, the other half observing. Then after debrief, roles will be swapped, so all students have an opportunity to participate in a simulation. Simulation will be developed in collaboration with the N220 instructor. Students will be provided with pre-brief information in advance (including a basic report of the patient and some general info about simulation). Elements of communication, SBAR, and calling a physician should be addressed in simulation.

Time: Scenario usually lasts about 20-25 minutes. Debrief will last 40 minutes. A brief reminder to simulation, description of roles, etc will last 10 minutes.

Debrief: Will follow simulation. Will discuss both observations made by students engaged in the simulation, but also those assigned specific observer roles. Will discuss any procedures/skills performed, assessment skills and group dynamic issues. Focus will be on more critical thinking issues, decision making under pressure, communication, SBAR, calling a physician and nursing scope of practice issues.

Learning Objectives:

Students will demonstrate insight to their own role in group dynamics and communication (SBAR, calling physician, delegating, etc).

Students will demonstrate awareness of their own limitations and strengths in a patient care situation, focusing on prioritization, teamwork and decision making under pressure.

Students will be able to objectively assess their peer's performance and non-judgmentally and non-threateningly provide feedback; additionally, students will be receptive in a non-defensive manner to constructive criticism from their peers.

Resources needed:

      Sim Tech

Faculty Facilitator with pediatric nursing knowledge o assist in simulation, serve as physician/ARNP of patient (answer phone calls as needed, for example) and to guide students and provide prompts as needed and facilitate debriefing.

Sim man set up for specific scenario

Equipment and supplies needed specific to the scenario

Appendix B

Bellevue College Simulation Center 5 Year Development Plan Draft

2015-2016
Move into new facility
Hire/train sim/lab technician
Develop simulation team
Expand simulation equipment:
Additional SimMan Essential, Sim Baby, Sim Kid, additional Vital Sims in lab plus Sim Pad
Develop faculty training program (fall/winter)
Resources:
UW: http://collaborate.uw.edu/faculty-development/teaching-with-simulation/teaching-with-simulation.html-0
SIRC: Site license one year
http://sirc.nln.org/mod/page/view.php?id=842
Petition for grant support and funding
Begin faculty training (Winter/Spring)
Begin to transition to new model of sim education, using trained instructors
Develop a workload/compensation model for simulation
Train clinical faculty on Vital SimPads for in lab use

2016-2017
Continue faculty training
Move trained faculty into sim lab
Work with faculty to identify curricular areas that would benefit from simulation
Begin to expand number of simulations in each class
Use pre-programed simulations (already purchased NLN scenarios) as much as possible
Set goal for number of hours of simulation, percent of clinical hours in sim and begin to implement

2017-2018
Acquire birthing simulator, develop OB clinical experiences in sim lab
Explore use of standardized patients for mental health sim
2018-2019
Begin to explore accreditation process, choose areas and create plan (must have at least 2 years' experience in the functional area before applying- next two years would be built on that)
2019-2020
Continue to work towards accreditation
2020-on
Expand, be accredited. Explore interdisciplinary and community activities.