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MEMORANDUM

To: Dr. Bettie Rose Horne, Chair, and Members, Committee on Academic Affairs and Licensing

From: Dr. Gail M. Morrison, Director of Academic Affairs and Licensing

Consideration of Lottery-Funded Nursing Simulation Proposal, FY 2008-2009

Background

For fiscal year 2008-2009, the lottery expenditure account statute provides for $1,000,000 of unclaimed lottery prize funds to be used for the Critical Needs Nursing Initiative Fund for simulation technology and equipment. Enacted during the 2007-2008 session, the Critical Needs Nursing Initiative Act (Section 59 Chapter 110 of the South Carolina Code of Laws) established the Critical Needs Nursing Initiative Fund to address the priorities of the legislation, which are to: provide enhancements to faculty salary; recruit new faculty; increase student scholarship, loan, and grant programs; establish the Office for Health Care Workforce Research; and use simulation technology and equipment.

Discussion of the Proposal to Allocate Funds to Integrate Simulation in Nursing Education Programs

The South Carolina Council of Deans and Directors of Nursing Education proposes to use the $1,000,000 lottery appropriation for a collaborative project to develop and then implement an educational plan to teach faculty members the knowledge and skills needed to best incorporate simulation into their teaching strategies (see the attached proposal "Integration of Simulation in Nursing Education Programs in South Carolina"). Using monthly regional workshops and an expanded train-the-trainer model, the South Carolina Council of Deans and Directors of Nursing Education believe they can move toward a standardized curriculum for patient simulation, thus enabling all nursing students to experience similar patient care scenarios. The proposal notes that currently

almost all of the nursing programs in the state have access to human patient simulators, but that these simulators are underutilized because the faculty are not familiar with the technology. With this proposed solution, faculty members who receive advanced training will be able to teach a full range of simulation skills to nursing faculty at their home institutions. This solution should be both cost-effective and efficient in providing consistent education statewide because at the conclusion of the project, approximately one-fourth of all nursing educators will have the opportunity to receive simulation training (120 out of approximately 400 nursing educators will attend the workshops). These nursing educators will then be able to share this knowledge with their colleagues.

The proposal from the South Carolina Council of Deans and Directors of Nursing Education features three parts: assessing the needs of each program and its nursing faculty; developing and implementing an educational plan designed to train faculty in the use of simulators; and studying student and faculty outcomes to determine the effectiveness of simulation as an educational tool. As such, although the lottery appropriation is for fiscal year 2008-2009 only, the project is expected to span three years. Therefore, an institutional fiscal agent yet to be determined will hold these funds in trust for the South Carolina Council of Deans and Directors of Nursing Education and administer the funds according to the proposed budget (although the CHE can serve as fiscal agent and is willing to do so).

The proposal also states that a project manager and nurse consultant will be needed to guide the project. The project manager will be responsible for performing the needs assessment, arranging the monthly regional workshops, tracking faculty progression through the different training sessions (novice, proficient, and advanced training sessions will be offered), and maintaining extensive data collected from the project. Overall, the project manager will provide guidance and ensure that the project continues smoothly. The nurse consultant will be responsible for analyzing the needs assessment and subsequently developing the content needed for the workshop training sessions. The nurse consultant will also continue to develop and adjust the workshops as faculty members acquire more knowledge and skills. This task of developing the content for the workshops is complex as the nurse consultant will need to consider the needs of programs that differ widely in terms of facilities, access to different types of simulators, and access to clinical experience.

The scenarios included in the training sessions need to address what is and is not available to students so that nursing faculty can provide their students with the richest experiences possible through the use of simulation. For example, nursing students in rural areas may not be exposed to certain experiences, so the simulation should provide exposure to those experiences. The nurse consultant will ensure that the faculty are taught standardized scenarios, especially those dealing with high risk conditions such as heart attack, stroke, head injury, diabetes, and pneumonia, to enhance the preparation and capabilities of nursing students because the simulation will complement, not replace,

clinical experience. The standardized scenarios will also ensure that each nursing student is exposed to similar situations which will help make nursing education more comparable statewide.

The Critical Needs Nursing Initiative Fund is designated for public institutions only; however, to encourage the use of simulation statewide, nursing programs at independent institutions should be permitted to participate in the project by paying a modest fee.

As required by the legislation, the Commission's Advisory Committee on Academic Programs is required to approve the simulation proposal. The Advisory Committee on Academic Programs approved the proposal at its meeting on March 19, 2009.

Recommendation

The staff suggests that the Committee on Academic Affairs and Licensing recommend to the Commission approval of the proposal "Integration of Simulation in Nursing Education Programs in South Carolina" submitted by the South Carolina Council of Deans and Directors of Nursing Education provided that:

1. funding for the simulation technology and equipment is available through unclaimed lottery prize funds at the end of the 2008-2009 fiscal year as stated in legislation;
2. substantive budget changes, if any, be submitted for approval to the Commission staff; and
3. if a fiscal agent other than the Commission on Higher Education is requested, that that institution should be identified in writing to the Commission staff.

Attachments: Proposal and budget, "Integration of Simulation in Nursing Education Programs in South Carolina," submitted by the South Carolina Council of Deans and Directors of Nursing Education.

Integration of Simulation in Nursing Education Programs in South Carolina

Executive Summary

Problem

The quality of student clinical experiences in SC Nursing programs varies widely and is dependent on the types of facilities accessible to a particular school. Exposure to certain patient conditions is often restricted by hospitals by the critical nature of the patient's condition and the number of students needing a similar experience.

Solution

Human patient simulation provides opportunities for ***all students*** to develop critical skills in a safe environment. This funding will provide education for faculty members to fully integrate quality simulation into every nursing program in the state.

Benefits for each institution

- Individualized in-depth assessment of simulation needs for nursing programs
- Customized plan to fill those needs
- Statewide networking to increase the number of validated ready-to-use simulation modules
- Collaboration to evaluate the effectiveness of those student learning modules
- Tiered nurse faculty development program to accommodate the range of nurse educators and various types of nursing educational programs in the state
- Expanded numbers of simulation-proficient faculty
- Integration of simulation into the nursing curriculum statewide
- Increased use of existing simulation equipment on every campus
- Maximized use of the six state-funded simulation centers affiliated with the CoEE Center for Clinical Effectiveness and Patient Safety
- Potential to increase NCLEX pass rates with more opportunities to develop critical thinking and decision-making skills
- Enhanced teaching efficiency with the possibility to increase enrollments in nursing programs or to stabilize current enrollments in light of severe state budget reductions

Economic Impact:

- Above services would be cost-prohibitive if individual nursing programs had to pay for them directly
- Cost effective solution to increase faculty expertise and teaching efficiency for the education of South Carolina's future nursing workforce
- Faculty education provided in-state to minimize costs, travel and lost work time
- Empirical validation of student clinical competencies resulting in fewer medical errors, greater patient safety, and ultimate health care cost savings.

Integration of Simulation in Nursing Education Programs in South Carolina

Problem Description

Problem Identification

Nursing students require experiences with seriously ill patients to gain the knowledge and skills to make timely decisions regarding patient care. In-hospital patient care experience is the foundation for developing nursing expertise in caring for patients with complex conditions. The South Carolina Council of Deans and Directors of Nursing Education (SCCDDNE) recognizes that while nursing faculty members attempt to select the best patient care experiences for all students, this standard is difficult to achieve as many nursing programs in South Carolina vie for the same optimum clinical areas. Currently in-hospital patient care experiences are random, neither standardized nor readily available. Nursing faculty find relevant patient care experiences increasingly scarce for nursing students because the hospitals limit the number of students per patient care unit and some hospitals do not allow students to care for critically ill patients who require intensive care.

Importance of the Problem

While human patient simulators cannot replace in-hospital patient care experiences, students will be better prepared to care for seriously ill patient if they have learned to make decisions based on experiences with a human patient simulator. King, Moseley, Hindenlang and Kurtz (2008) found that nursing faculty members were often reluctant to use human patient simulators in spite of availability and significant financial commitment with equipment purchase. Currently almost all 24 nursing programs in South Carolina have access to human patient simulators, however most simulators are underutilized.

Project Objectives

The main objective of the project is to increase the knowledge, skill and comfort of the nursing faculty in the use of human patient simulators in the nursing programs. At the completion of the project, 1) each nursing program will report that the use of human patient simulators has increased by 50% when compared to baseline use at the time of the initial needs assessment, 2) at least two faculty members in each nursing program will report they consistently use realistic simulation scenarios in their courses, and 3) a concurrent research initiative will determine student outcomes of using human patient simulation in nursing programs.

Brief Solution Description and Rationale

The proposed solution is a state-wide collaborative plan to educate nursing faculty to develop meaningful learning experiences using high fidelity human patient simulators. This plan will teach faculty to develop clinical scenarios to provide standardized experiences for learning without risk to patients. Nursing faculty will collaborate with faculty members from other nursing programs to share useful scenarios to prevent duplication of effort in producing significant simulated clinical experiences. The faculty will collaborate with hospital nurses to incorporate critical issues, such as patient safety goals, in the scenarios to teach nursing students the decision making skills necessary for safe patient care.

Solution Description

Solution Description

The proposed solution will consist of three parts: 1) a needs assessment to determine the specific needs of each program and nursing faculty, 2) an educational program consisting of training workshops to meet the needs of faculty in nursing schools across the state, and 3) a study to determine student outcomes related to the use of simulation as an educational learning tool.

A needs assessment will be conducted and analyzed to determine the requirements of the nursing faculty in the nursing program for education about simulators. The project manager will establish a working relationship to allow nursing programs access to resources available in the Health Sciences of South Carolina Centers of Economic Excellence (CoEE). The project manager will work with individual nursing programs to provide on site workshops or to send nursing faculty who are proficient to the nursing program that requests a workshop.

Based on the analysis of the needs assessment, the nurse consultant will work with nurses from across the state to develop a variety of educational offerings to meet the specific needs of nursing faculty to integrate simulation in their nursing program. The project manager will share systematic plans to track progress in the project and work with nurse researchers to prepare the data for collection. In a series of workshops, faculty will develop clinically equivalent experiences in the simulated environment to achieve course objectives. Clinical equivalents would allow all nursing students to learn the decision-making and critical thinking that is required of a nurse when a patient's condition is deteriorating.

In the third phase of the project, nurse researchers will design and implement studies to determine the student and faculty outcomes that result for the use of simulation in the nursing program. The findings will provide direction for the effective use of simulation in nursing education in the future.

Consistency of Solution with Research Support

Studies show that nursing faculty members have positive feelings about integrating simulators in the curriculum. Yet even when simulators are available, faculty do not use simulators to their fullest because they believe that additional time and support is needed to learn

the technology (Feingold, Calaluce, & Kallen, 2004; King, et al., 2008; Nehring & Lashley, 2004). This proposal provides a solution by providing the time and education for faculty to learn how to integrate clinically realistic experiences into nursing courses.

Feasibility of the Solution

The proposal is feasible because the SCCDDNE support this project to make the best use of the simulators already in nursing programs. Simulation labs are not fully used and would provide a good venue for the proposed workshops. The funds will provide faculty with education, time and compensation to expedite knowledge acquisition to integrate human patient simulation scenarios as a teaching method in nursing programs.

Consistency of Solution with Resources

The proposal is consistent with resources because the CoEE will provide access to knowledge about writing scenarios. Simulation centers are within a day's drive of each nursing program. The SCCDDNE members have successfully collaborated in the past to produce a statewide articulation agreement and the spirit of collegiality among nursing programs persists.

Implementation Plan

Solution Implementation Steps

The first step of the plan is to conduct a state-wide needs assessment to identify the number, type and extent of use of patient simulators in each nursing program. The project manager will visit schools and interview faculty to obtain information. The nurse consultant will analyze the data from the needs assessment and develop an educational program to meet the faculty needs. The nurse consultant will share the educational program with the faculty and revise if necessary. The project manager will set up a mutually agreeable time, place, and resources for the workshop. The workshops will be conducted in regional locations or at the

nursing program depending upon the resources available to each program. The regional workshops will be open to faculty from other schools on a first notify, first served basis because of space limitations. If interest is high, additional workshops on that topic will be offered at a later time. The project manager will publish and disseminate the workshop schedule through the SCCDDNE network so that accommodations for faculty teaching schedules can be adjusted to allow faculty to attend the workshops.

In year three, the novice and proficient simulation faculty from each school will maintain the momentum and develop a plan within their home school to teach new faculty how to incorporate human patient simulation into the teaching strategies for the program. This train-the-trainer model can rapidly move an entire workforce of nursing educators toward a standardized curriculum for patient simulation, enabling South Carolina to have one more strategy in addressing the nursing faculty shortage.

Beginning in 2010, nurse researchers will design and begin to implement an evaluation of student and faculty outcomes when simulators are used as a learning method. These studies will include data from nursing programs that track student use in a robust data base.

Resources Needed for Solution Implementation

The resources that are needed for this project are the nursing faculty teaching clinical nursing courses in South Carolina using simulation as a teaching strategy. The project manager will contact each school to identify and invite those faculty members to attend the workshops as either a proficient or novice simulation user. The project manager will obtain permission and cooperation from each dean or director to encourage faculty participation in this project. The project manager will conduct the needs assessment via email, telephone and personal visits to the 24 nursing programs.

The nurse consultant will need time to access nurses in SC currently using simulation, as well as the various Simulation Center staffs to develop customized educational workshops for faculty across the state. The nurse consultant will have at least one customized, regionally accessible educational program ready by January 2010 and continue to revise the educational offerings based on the changing needs of faculty. Vendor provided educational offerings will be incorporated in the educational program as appropriate. The workshops will continue beginning in January 2010 through June 2012. The project manager will need educational materials, travel expenses and access to simulation centers to implement the educational plan. The project manager will produce the educational materials such as PowerPoint presentations and handouts. The project manager will coordinate the activities during the workshop to facilitate the interactions among faculty who are proficient and novices regarding the use of simulators. The workshop schedule will be published and disseminated and focused in regions throughout the state. A total of 30 monthly workshops will be conducted starting in January 2010.

Nurse researchers will submit proposals for consideration within the first year of the project to obtain institutional approval and begin data collection before January 2011. Between 2011 and 2012, the nurse researchers will analyze the data, and prepare the results for dissemination.

All state funds appropriated for this simulation project will be held in trust for the SCCDDNE by the MUSC College of Nursing (CON) Foundation. The SCCDDNE will appoint an advisory committee to work with the MUSC CON Foundation in oversight of the project. MUSC will serve as the employer for any project staff hired with these funds. The Advisory Committee will provide updates and reports to the SCCDDNE at each regularly scheduled meeting and as requested.

A project manager will be hired with the funds and will be responsible for day-to-day project operations. Duties will include: budget oversight; foster collaboration among the nursing programs; seek formal agreements between programs; schedule meetings and workshops; conduct and analyze the needs assessment; disseminate needs assessment findings; implement the statewide simulation education project; coordinate evaluation/reports on the project for various constituents, including the state legislature.

Other costs associated with the project include: a stipend for the proficient faculty and novice faculty to attend the workshops; travel expenses to the workshop; lodging for the presenters and participants at the workshop; the cost incurred by various simulation centers, staff and supplies; compensation for the nurse consultant; the cost of IT support; and funding for the outcome evaluation/research projects. See Appendix A for a detailed budget. The steps of the project including the person responsible and the projected timeline are outlined in Appendix B.

Monitoring Solution Implementation

To monitor the project, nursing faculty will complete a survey stating their level of proficiency before and three months after the workshop. The project manager will collect extensive data on the demographics of the school, faculty and simulation resources and the change in proficiency and resources between the beginning and end of the project. The project manager will maintain a data base for use in studies. Nursing faculty will evaluate each session and the project manager and nurse consultant will analyze the data to determine how they will adjust the educational programs to meet faculty needs. The results will be reported to the SCCDDNE at their bi-monthly meetings.

Solution Feasibility

A primary feature of this project will be the offer of technical and educational training at various levels for nursing faculty across the state. Novice faculty will ***conduct*** a clinical equivalent class for nursing students at a CoEE or campus simulation lab to prepare classes using a human patient simulator at the home school. Proficient nursing faculty will ***develop*** a clinical equivalent session, ***teach*** nursing students at the CoEE or other campus simulation lab and ***teach*** students at their home school. Over the following two years, the proficient faculty member will return for advanced training on how to ***teach a full range*** of simulation skills to nursing faculty at the home school. This is a very cost-effective way of providing a high level of intense and consistent nurse-faculty education for the entire state. Comparatively, a week-long program for one faculty member to go out of state would range between $3,000 and $5,000.

One expected outcome of this project is that meeting the specific needs of nursing educators at a variety of levels will enable them to more effectively integrate the use of human patient simulator scenarios within their curriculum. Faculty will receive a stipend to support their attendance at one or more of the CoEE or a campus simulation lab, returning to their home base with a follow-up teaching session at the home school. Using these funds, the CoEE labs or campus simulation lab will be compensated for the use of the facility and providing the educational sessions.

Evaluation Plan

Outcome Measures

To measure the main objective of increasing the knowledge and skill of the faculty who integrate the use of human patient simulators in nursing programs, faculty will complete the

Faculty Attitudes and Intent to Use related to the Human Patient Simulator (HPS) scale (King, et al. 2008).

The outcome of the workshops will be 120 nursing faculty will progress from being simulation novices to proficient users of simulation technology. Proficiency is defined as producing a rich scenario and conducting a class using a patient simulator at least three times during a semester. Another outcome will be the compilation of scenarios that give nursing students hands-on experience with common high-risk conditions, such as, heart attack, head injury, diabetes, pneumonia, and stroke (Poster, 2009). Nursing students in programs with access to simulators will report that they have had at least one experience using a simulation scenario in each clinical course of their program.

The report will show that the faculty and students have increased the use of simulators by 50% over the baseline use score. The results of studies will provide evidence regarding student and faculty outcomes after using human patient simulation. Findings will be disseminated at conferences and submitted for publication.

Data Collection and Analysis

The project manager will collect data immediately and consistently throughout the project. During the first six months the project manager, nurse consultant and researchers will determine the research questions, methodology and format for data collection. Nursing programs will collect data regarding use of the simulator. Faculty will complete surveys at the end of each educational session. The nurse consultant will analyze the data for the interim and final reports. Data collection regarding student and faculty outcomes will be collected and analyzed by the researcher team.

Resources Needed

The project manager, faculty, and students will be needed for this data collection. The project manager will collect and track responses. The project manager will collaborate with the nurse consultant to assure that the correct data is being collected to make decisions regarding the development and revision of the educational workshops. The main costs will be the salaries and benefits of the project manager, nurse consultant, nurse researchers, and statisticians, and the cost of creating, testing and validating the assessment instruments, obtaining the technology needed to collect data, conducting data analyses, and preparing and disseminating the results.

Feasibility of the Plan

The evaluation plan is feasible because the nursing faculty members are used to completing end of course evaluation surveys. The *Faculty Attitudes and Intent to Use related to the Human Patient Simulator (HPS)* scale is short and simple to complete. The project manager is charged with the collection of all other data. The nurse researchers will determine the data required for evaluation of student outcomes.

References

Feingold, C., Calaluce, M. &Kallen, M. (2004). Computerized patient model and simulated clinical experiences: Evaluation of BSN students. *Journal of Nursing Education, 43*(4), 156-163.

Burns, P., & Poster, E. (2008). Competency development in new registered nurse graduates: Closing the gap between education and practice. *Journal of Continuing Education in Nursing, 39*(2), 58-64.

King, C. J., Moseley, S., Hindenlang. B., & Kurtz, P. (2008). Limited use of the human patient simulator by nurse faculty: An intervention program designed to increase use. *International Journal of Nursing Education Scholarship, 5*(12).

Nehring, W., & Lashley, F. (2004). Current use and opinions regarding HPS in nursing education. *Nursing Education Perspectives, 25*(5), 244-248.

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Appendix A

Proposed Budget for the Simulation Education Project

Expense	**Year 1**	**Year 2**	**Year 3**	**Total**
Faculty Educational Program [1]	122,200	176,400	176,400	475,000
Nurse Consultant [2]	50,000	50,000	50,000	150,000
Project Manager (salary and benefits) [3]	60, 000	60,000	60,000	180,000
Project Manager expenses (travel, meetings)[4]	10,000	10,000	10,000	30,000
Needs Assessment to determine the specific needs of faculty in each nursing program [5]	5,000	-	-	5,000
Research Initiative [6]	20,000	70,000	70,000	160,000
Total				1,000,000

[1] Educational Program Expenses:

Thirty unique, intense 18 hour, customized workshops for 120 nursing faculty ($13,500 x 30 workshops) $405,000

Two Instructors (proficient nursing faculty) = $4,000

Simulation center equipment, set up and use = $1,500

Four participants (novice nursing faculty): travel, lodging, stipend = $8,000

Vendor produced and project developed educational materials 70,000

[2] Nurse Consultant is the content expert who will analyze needs assessment to develop and customize workshops.

[3] Project Manager is the logistics expert who will match customized workshops with faculty needs and available resources.

[4] Project Manager will incur expenses while negotiating collegial agreements among nursing programs to schedule workshops at times convenient for the proficient and novice nurse educators, vendors, and the Center for Economic Excellence. The Project Manager will be present to register participants and act as facilitator at each workshop.

[5] Needs Assessment will be conducted and analyzed within the first six months to determine the specific needs of faculty in each nursing program and how a workshop can meet their needs.

[6] Research Initiative will be awarded for a research proposal to study the student outcomes of the use of simulation in nursing education programs.

Appendix B

Simulation Education Project Plan

Action steps	Person responsible for the action	Time frame for each action (tentative and dependent on the receipt of funds, hiring of personnel, etc)
Hire project manager and nurse consultant		July 2009- Sept 2009
Needs Assessment	Project manager	Sept 2009-Oct 2009
Analysis of needs assessment	Nurse consultant	Nov 2009- Dec-2009
Solicit research proposals		July – September 2009
Develop and schedule workshops		December 2009
Select research projects		December 2009
Regional workshops to educate faculty	Project manager Proficient faculty	January 2010 – June 2011
Initiate research		February 2010
Proficient faculty instruct novice faculty in home school	Project manager Proficient and novice faculty	July 2011 – June 2012
Data analysis Manuscript writing, dissemination at conferences and publications	Nurse researchers	