

Enhancing baccalaureate nursing students' readiness for professional practice with multi-patient simulations using telehealth to create opportunities for interprofessional collaboration

Kelly Powers, PhD, RN, CNE (PI)

Assistant Professor, School of Nursing

Wendy Neustrup, MSN, RN, CNE (Co-I)

Lecturer, School of Nursing

Scholarship of Teaching and Learning (SoTL) Grant Proposal

UNC Charlotte School of Nursing, College of Health and Human Services

November 1, 2018

### **Abstract**

Healthcare is provided by diverse interprofessional teams. To narrow the gap between education and practice it is vital for pre-licensure nursing students to practice collaborating with other healthcare team members. However, students report few experiences with interprofessional collaboration prior to graduation, both at UNC Charlotte and nationally. This project seeks to improve student learning outcomes by providing opportunities to practice communicating and collaborating with other health professionals using simulation augmented with telehealth technology, thereby addressing the School of Nursing (SON) goal of increasing use of simulation technology and the College of Health and Human Services (CHHS) goals of promoting innovation and interdisciplinary approaches. A mixed methods approach will be utilized to examine using simulations with telehealth to facilitate interprofessional collaboration for baccalaureate nursing students. Aims are to: 1) evaluate the effect of the simulations on students' attainment of interprofessional collaboration competencies and amount of collaboration in the clinical setting, 2) explore students' simulation experiences and perceived readiness to transition to practice as part of an interprofessional team, and 3) assess students' satisfaction and self-confidence following the simulations. The study intervention is two telehealth-augmented, multi-patient interprofessional simulations with standardized patients. Data will be collected at four timepoints in Spring 2019. Quantitative measures will include the Interprofessional Collaborative Competency Attainment Survey, self-reported amount of clinical interprofessional collaboration, and Student Satisfaction and Self-Confidence in Learning instrument. Repeated-measures ANOVA will be used to detect significant changes. Focus groups will be conducted to explore students' simulation experiences and perceived readiness for interprofessional practice.

**Budget Request Page**  
**January 15, 2019 to May 30, 2020**

***BUDGET:*** *Request by budget category. Joint proposers must select one PI to be the lead and one department to receive this allocation.*

Lead Principal Investigator: Kelly Powers, PhD, RN, CNE

Principal Investigator 800#: 800657029

Title of Project: Enhancing baccalaureate nursing students' readiness for professional practice with multi-patient simulations using telehealth to create opportunities for interprofessional collaboration

Allocate operating budget to Department of: School of Nursing, College of Health and Human Services

<b>Fiscal Year One (January 15, 2019 to May 30, 2019)</b>		
Faculty Stipend	Paid directly from Academic Affairs fund on May 15, 2019	\$7,700 (\$3,850 for Powers; \$3,850 for Neustrup)
911250	Graduate Student Salaries	\$1,125
911300	Special Pay to Faculty other than Grantee	
915000	Student (Undergraduate or Graduate) Temporary Wages	
915900	Non-student Temporary Wages	
920000	Honorarium (Individual(s) not with UNCC)	
921160	Subject Incentive Fee	\$550
925000	Domestic Travel	
926000	Foreign Travel	
928000	Communication and/or Printing	\$300
930000	Supplies	
942000	Computing Equipment	
944000	Educational Equipment	
951000	Other Contracted Services	\$3,867
<b>Year One Subtotal</b>		<b>\$13,542</b>

Lead Principal Investigator: <u>Kelly Powers, PhD, RN, CNE</u>		
<b>Fiscal Year Two (July 1, 2019 to May 30, 2020)</b>		
Faculty Stipend	Paid directly from Academic Affairs fund on May 15, 2020	
911250	Graduate Student Salaries	
911300	Special Pay to Faculty other than Grantee	
915000	Student (Undergraduate or Graduate) Temporary Wages	
915900	Non-student Temporary Wages (see PD-17)	
920000	Honorarium (Individual(s) not with UNCC)	
921160	Subject Incentive Fee	
925000	Domestic Travel	\$2,400 \$1,200 for Powers; \$1,200 for Neustrup)
926000	Foreign Travel	
928000	Communication and/or Printing	
930000	Supplies	
942000	Computing Equipment	
944000	Educational Equipment	
951000	Other Contracted Services	
<b>Year Two Subtotal</b>		\$2,400
<b>TOTAL FUNDS REQUESTED (Year One + Year Two)</b>		\$15,942

SoTL Proposals that do not receive SoTL funds may be eligible for support from the Office of Assessment and Accreditation. If your SoTL proposal is not recommended for funding, would you like for your proposal to be shared with the Office of Assessment for review and consideration for funding from that office? YES   X    
NO \_\_\_\_\_

### **Budget Narrative**

#### **Faculty Stipends (total \$7,700):**

Summer stipends are requested for Dr. Kelly Powers (PI) and Ms. Wendy Neustrup (Co-I) to support our work over the Summer of 2019 when we will conduct data analysis and prepare a manuscript for publication. Dr. Powers will be responsible for conducting quantitative data analysis. For qualitative analysis, Dr. Powers and Ms. Neustrup will individually review the focus group transcripts and then will meet to discuss the data and form themes. Ms. Neustrup will prepare simulation outlines for submission as part of the manuscript. Dr. Powers and Ms. Neustrup will prepare the manuscript outlining the study methods and findings together. Dr. Powers and Ms. Neustrup will teach no more than one summer course. A summer stipend of \$3,850 is requested for each of the investigators = Total requested \$7,700.

#### **Graduate Student Salaries (total \$1,125):**

Funds are requested for graduate student salaries to hire a graduate assistant (GA) to assist with data collection and management (Qualtrics sites and focus groups). The GA will assist with building Qualtrics study sites for quantitative data collection and with transferring and preparing data for analysis. The GA will collect student participant email addresses to sign up for a focus group interview, and then will conduct up to four focus groups (without PI or Co-I present so participants do not alter responses to please the investigators). The GA will also assist with literature reviews in preparation for manuscript submission. The GA will be paid at a rate of \$15/hour X 5 hours/week for a total of 15 weeks in Spring 2019 = Total requested \$1,125.

#### **Subject Incentives (total \$550):**

Funds are requested for student participation in the focus group interviews. As incentive for their participation in a focus group interview, participants will be informed they will receive a

\$10 gift card upon focus group completion to thank them for their time. Each focus group is anticipated to be 45 minutes long. There are 55 potential participants X \$10 gift card each = Total requested \$550.

**Communication/Printing (total \$300):**

Funds are requested for professional transcription of the focus group interviews. Following each audio-recorded focus group, recordings will be forwarded to a professional transcriptionist and recordings will be transcribed to ensure accurate data for analysis. The professional transcriptionist will provide the PI with a verbatim transcript of each focus group interview. Up to 4 focus group interviews (lasting approximately 45 minutes) will be conducted to ensure small group size. Transcription of 45 minutes interview is approximately \$75 X 4 interviews = Total requested \$300.

**Other Contracted Services (total \$3,867):**

Funds are requested for standardized patient (SP) preparation, training, and hourly salaries. SPs are individuals who are trained to act as the patient during simulations. Use of SPs enhances realism, which is essential for students in their final clinical course. The higher the realism, the better students can transfer knowledge and skills into the clinical setting. SPs must be trained for standard simulation procedures and specific simulation scenarios. For this study, Simulation#1 will involve 2 SPs to act as an elderly patient with chronic pulmonary disease and a patient with uncontrolled diabetes for a total of 6 simulation days. Simulation#2 will involve 2 SPs to act as a homeless patient with tuberculosis and HIV and a patient with an acute stroke for a total of 6 simulation days. Funds of \$3,675 are requested to pay for SP preparation, training, and hourly salaries per the attached quote from the Atrium Health Carolinas Simulation Center's SP program. Additionally, passes for UNC Charlotte parking are requested for the 2 SPs who

will transport themselves to campus for each of the simulations (\$8 parking pass X 12 simulation days X 2 SPs= \$192). Total requested is  $\$3,675 + \$192 = \$3,867$  for SPs.

**Domestic Travel (total \$2400):**

Funds are requested during Year 2 for domestic travel. The PI and Co-I will submit an abstract in October 2019 for podium presentation at the annual conference of the International Nursing Association for Clinical Simulation and Learning (INACSL). The June 2020 INACSL conference is planned to be in Raleigh, NC and funds are requested for PI and Co-I conference registration and hotel for the 3 nights of the conference. Conference registration for 2019 is \$599 per person for INACSL members. Hotel is estimated at around \$200 per night. Total requested per person = \$600 (registration) and \$600 (hotel) = \$1200 per investigator X 2 investigators = \$2,400.

**Invoice for SP Preparation, Training, and Salary**



Carolinas Simulation Center

1200 Blythe Blvd.  
Charlotte, NC 28203

Phone (704)355-0956  
Fax (704)355-2519

simulationcenter@carolinashealthcare.org

Invoice	
<b>Invoice Date</b>	10/29/2018
<b>Terms</b>	Net 30
<b>Invoice #</b>	150

Name/Address
UNCC School of Nursing Wendy Neustrup, MSN, RN, CNE 9201 University City Blvd Charlotte, NC 28223

P.O. Number	Course Name
	Jan 1 2019:Spring 2019 SP Use

Item	Description	Quantity	Rate	Total
Course Coordination	January 1, 2019, Spring 2019 SP Use (3 hours/week for 12 weeks) Scheduling, e-mails, phone calls, vendor contacts, ordering supplies, etc. (2 hours x 1 person)	2	50.00	100.00
Standardized Participant Trng	Training session for SP	2	50.00	100.00
Sim Center Operations	Operations and support of course (3 hours x 1 person)	3	50.00	150.00
Simulated Participant (SP3)	Simulated Participant Level 3 with script (38 hours x 2 person) (includes training and sessions)	76	43.75	3,325.00
Please fill in Interco Transfer info below: Business Unit: _____ Department: _____ Account: _____ Carolinas Simulation Center will transfer funds upon receipt of Interco info.				

Authorizing Signature: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Date: \_\_\_\_\_

If not using Interco Transfer, please include a copy of invoice and send payment to: Carolinas Simulation Center 1200 Blythe Blvd. Charlotte, NC 28203	<b>Total</b> \$3,675.00
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**Letter of Support**

October 25, 2018

Dear SoTL Grant Reviewers:

I am pleased to provide this letter of support for Dr. Kelly Powers and Ms. Wendy Neustrup's application to the SoTL Grant program. Dr. Powers' and Ms. Neustrup's project, titled *Enhancing baccalaureate nursing students' readiness for professional practice with multi-patient simulations using telehealth to create opportunities for interprofessional collaboration*, is both timely and relevant, as we seek creative ways to prepare students for their roles on high-functioning interprofessional teams.

The project aligns with the mission, vision and values of the University, the College of Health and Human Services, and the School of Nursing. The School of Nursing is committed to expanding the use of simulation and other innovative processes, as it prepares nursing professionals to serve as leaders and clinicians through a wide range of innovative programs to meet the healthcare needs of our diverse society.

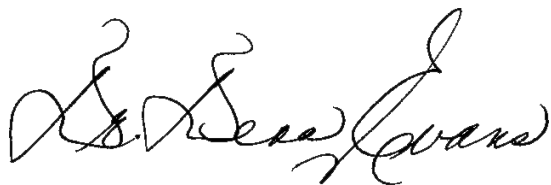
Dr. Kelly Powers, PhD, RN, CNE is an Assistant Professor in the School of Nursing, and an emerging nurse scholar and researcher at UNC Charlotte. She has demonstrated commitment to excellence in her scholarship, and in the past two years she has had twelve (12) publications in highly-regarded, peer-reviewed publications. She has published on simulation and clinical educational interventions, and has presented on these topics at national conferences via poster and podium presentations. Dr. Powers is an excellent nurse educator with experience teaching in both graduate and undergraduate programs in the School of Nursing. Her innovative nature led the School of Nursing in its efforts to implement a Dedicated Education Unit (DEU) model for clinical practice, which Dr. Powers has expanded to include over 20 dedicated education units at three comprehensive medical centers in the Charlotte region. In fall 2017, she began serving as Program Affiliate for our School of Social Work's Charlotte Regional Integrated Behavioral Health Scholars Program that is funded by the Health Resources and Services Administration. In this role, she has collaborated with leaders in social work to develop a graduate-level interprofessional education course. Dr. Powers' contributions related to sound course design and innovative teaching strategies will ensure student achievement of interprofessional competencies.

Ms. Wendy Neustrup, MSN, RN, CNE will serve as co-investigator, and work closely with Dr. Powers to implement the interprofessional simulation interventions outlined in their proposal. Ms. Neustrup has been a lecturer in the UNC Charlotte School of Nursing since 2008. She has taught a variety of courses in the pre-licensure and RN-to-BSN programs; including illness and disease management (classroom and clinical), pharmacology, leadership, and community health. She is an expert clinician who has worked in a variety of healthcare setting throughout her career. Ms. Neustrup is a Certified Nurse Educator and has excelled in her teaching of students in the classroom, clinical, and laboratory settings. She is committed to assisting students to achieve success, and this is apparent in her student evaluation results and through her success in receiving the College of Health and Human Services, Faculty Excellence Award in Clinical Teaching.

The study proposed by Dr. Powers and Ms. Neustrup involves using telehealth to facilitate interprofessional simulations for our BSN students. During the multi-patient simulations with standardized patients, students will be able to use telehealth via iPADS to consult and collaborate with other members of the interprofessional team (nurse practitioner, respiratory therapist, and social worker). This study is important to promote positive learning outcomes for our BSN students and results of their innovative approach have the potential to promote interprofessional learning in other nursing programs. I have read and support Dr. Powers and Ms. Neustrup's proposal and believe it will greatly enhance our students' preparation for professional practice as members of an interprofessional team.

Dr. Powers and Ms. Neustrup's research has the potential to make significant contributions to advancing nursing and interprofessional simulation, and it is with great pleasure and enthusiasm that I support their proposal for a SoTL Grant. Thank you for your thoughtful consideration of this application.

Sincerely,



Dena Evans, EdD, MSN, RN, CNE, CNL  
Director, School of Nursing  
The University of North Carolina at Charlotte

**The Baccalaureate Degree in Nursing/Master's Degree in Nursing/Doctor of Nursing Practice and/or Post-Graduation APRN Certificate at The University of North Carolina at Charlotte is accredited by the Commission on Collegiate Nursing Education [www.ccnaccreditation.org](http://www.ccnaccreditation.org)**

**The UNIVERSITY of NORTH CAROLINA at CHARLOTTE**

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## Project Narrative

### Specific Aims

**Purpose and Objectives.** The purpose of this mixed methods study is to evaluate and explore multi-patient simulations using telehealth to create interprofessional collaboration opportunities for baccalaureate nursing students. Students' interprofessional collaboration competencies and clinical practices, perceived readiness to transition to practice as part of an interprofessional team, and experiences, satisfaction, and self-confidence with the simulations will be examined. The specific objectives are to:

Aim 1: Evaluate the effect of the simulations on students' attainment of interprofessional collaboration competencies and amount of collaboration in the clinical setting.

Aim 2: Explore students' experiences with the simulations and their perceived readiness to transition to practice as part of an interprofessional team.

Aim 3: Evaluate students' satisfaction and self-confidence following the simulations.

**Research Questions.** The research questions this study will answer are: 1) How do telehealth-augmented, multi-patient interprofessional simulations effect nursing students' interprofessional collaboration competencies and clinical practices?; 2) What are students' experiences with the simulations and perceptions of its impact on their readiness to transition to practice as part of an interprofessional team?; and 3) How satisfied and self-confident are students after the simulations?

**Rationale and Impact.** To prepare practice-ready nurses, pre-licensure students must learn to work in interprofessional teams (World Health Organization, 2010). Providing interprofessional learning experiences is vital to prepare students for practice where they will be part of a multidisciplinary team (Murdoch, Epp, & Vinek, 2017). However, nursing students

have few opportunities to collaborate with other health professionals prior to graduation- at UNC Charlotte (Powers, Staton-Williams, Sheeler, & Howard, 2017) and across the nation (Barnsteiner et al., 2012).

Simulation provides experiential learning by mimicking realistic clinical situations in a safe environment and because of its positive learning outcomes, simulation is widespread in nursing education (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Goal#4 of the SON strategic plan (aligns with CHHS goal#1) identifies the need to “employ simulation technology to expand innovative educational delivery.” This project will study an innovative approach to expanding simulation in the SON by using telehealth technology to enable students to communicate with a nurse practitioner (NP), respiratory therapist (RT), and social worker (SW) to address concerns while caring for multiple patients (actors) in the simulation laboratory. This project addresses SON learning priorities, and because there is a paucity of literature on using telehealth to facilitate interprofessional simulations, findings will fill an evidential gap to provide guidance to faculty seeking to promote interprofessional learning.

This study’s simulation interventions are being piloted in Fall 2018 as part of NURS 4450. PI and Co-I observations and feedback from students and collaborators (NP, RT, and SW faculty) is being used to refine the simulations prior to study commencement in January 2019. At this time, Simulation#1 is complete and most students (98%) strongly agreed or agreed “the teaching methods used in this simulation were helpful and effective” and “I am confident I am mastering the content of the simulation.” Qualitative data included: “Such a great environment to learn and participate in”; “I could put myself in the mindset that this was a real patient interaction we would encounter in the hospital”; and “Things happened in simulation that would

be a huge issue in the real world so I am thankful I got to experience it first-hand in simulation to make sure that it does not occur in real life.” Simulation#2 is currently being piloted.

### **Literature Review**

Only 10% of 5,700 nurse leaders reported that new graduates are fully prepared to provide safe, effective care (Berkow, Virkstis, Stewart, & Conway, 2008). To narrow the education-practice gap, students must gain experience with collaborating with other members of the interprofessional team (Berkow et al., 2008). Teamwork and collaboration is one of six Quality and Safety Education for Nurses (QSEN) competencies (Cronenwett et al., 2007) and there is a need for “innovation in academic nursing that promotes team-based, interprofessional healthcare” (American Association of Colleges of Nursing [AACN], 2017) and for “nurse educators to collaborate with other health professions to develop meaningful interprofessional education and practice opportunities” (National League for Nursing [NLN], 2015). Further, newly revised accreditation standards, effective January 2019, require curricula to have planned practice experiences that “foster interprofessional collaborative practice” (Commission on Collegiate Nursing Education [CCNE], 2018). Interprofessional simulations are important for SON accreditation and because a recent review found interprofessional simulations improved students’ self-confidence and skills for communication and teamwork (Labrague, McEnroe-Petite, Fronda, & Obeidat, 2018).

Simulation is supported by Kolb’s Experiential Learning Theory which posits that learning occurs when students engage in lived experiences requiring them to adapt to their environment and examine existing beliefs to merge them with new ideas (Kolb, 1984). Therefore, nursing programs often utilize simulation to assist students to apply classroom theory. Simulations most often involve caring for one patient (a manikin); however, as students progress,

more challenging simulations are needed to better mimic practice where nurses provide care to multiple patients. Multi-patient simulations have recently emerged in the literature, with 5 known studies examining simulations of multiple hospitalized patients. Significant findings included improved patient safety skills and confidence for prioritizing (Blodgett, Blodgett, & Bleza, 2016). To further enhance realism, simulations can also use trained individuals, called standardized patients (SP), to act as the patient to allow for realistic communication experiences (Oh, Jeon, & Koh, 2015). Very few studies have used SPs for interprofessional simulations, but results show statistically significant improvements in perceptions of other health professions (Liaw, Siau, Zhou, & Lau, 2014) and attitudes towards healthcare teams (Wilcox, Miller-Cribbs, Kientz, Carlson, & DeShea, 2017).

This project will be the first multi-patient and first interprofessional simulation in the SON and will include SPs to enhance realism. Findings will add to the limited evidence on using SPs in interprofessional simulations and will provide a unique contribution because informatics will be used to enable interprofessional collaboration. Informatics is a QSEN competency and it includes telehealth which is remote visual communication to facilitate professional consultations (Center for Connected Health Policy, 2018). Recently, a mid-west university received a HRSA grant to prepare graduate students to work in interprofessional teams and increase their telehealth competencies. This included a simulation where students physically with an SP used iPADS to remotely consult with students not on-site. The only presented results were qualitative comments revealing student satisfaction (Ciro, Randall, Robinson, Loving, & Shortridge, 2015).

Disseminating findings of this proposed study will fill a knowledge gap about telehealth-augmented interprofessional simulations. Investigation of this unique approach is important due to its potential to promote interprofessional learning in nursing education. Further, use of

telehealth can help ensure project sustainability because collaborators do not need to be present in the laboratory to communicate with students during simulations. Currently, NP, RT, and SW faculty are assisting, but persons in practice settings or health professions students could be used, expanding the pool of volunteers for sustaining this project.

## **Methods**

**Design.** This mixed methods study will use a quasi-experimental approach to evaluate changes in students' interprofessional collaboration competencies and clinical practices, and to assess student satisfaction and self-confidence. A phenomenological qualitative approach will be used to explore students' experiences with the simulations and their perceived readiness to transition to practice as part of an interprofessional team.

**Sample and Setting.** Convenience sampling will be used. All students enrolled in NURS 4450, the final clinical course in the SON BSN program, will be invited to participate. The study will occur in Spring 2019 and anticipated enrollment is 55 students. Quantitative data will be collected at four timepoints in the classroom and simulation lab using Qualtrics, and focus groups will occur in a conference room.

**Instruments.** At Timepoint1, a 5-item questionnaire will collect basic demographic information (age, gender, race/ethnicity, prior degrees, and healthcare work experience). To accomplish Aim 1, the 20-item Interprofessional Collaborative Competency Attainment Survey (ICCAS) will be administered at Timepoint1 (Interprofessional Pre-Test) and Timepoint4 (Interprofessional Post-Test). It collects self-report data on ability to perform various aspects of interprofessional collaboration using a 5-point Likert scale. Cronbach's alpha is 0.96 (Schmitz et al., 2017) and it is available open access from the National Center for Interprofessional Practice

and Education. At these timepoints, participants will also report amount of interprofessional collaboration in clinical courses prior to and during NURS 4450.

To accomplish Aim 2, participants will be invited at Timepoint4 to participate in a focus group to explore their simulation experiences and perceived readiness to transition to practice as part of an interprofessional team. Focus groups will be guided by a 7-question interview guide to elicit the experiences and views of participants. To accomplish Aim 3, participant satisfaction and self-confidence will be assessed immediately after the two simulations at Timepoint2 (Post-Simulation#1) and Timepoint3 (Post-Simulation#2) using the 13-item Student Satisfaction and Self-Confidence in Learning (SSSCL) instrument. This instrument uses a 5-point Likert scale and Cronbach's alpha is 0.94 for the 5 satisfaction items and 0.87 for the 8 self-confidence items (NLN, 2018). The NLN has granted permission to use the scale.

**Intervention.** The intervention will consist of two multi-patient simulations, with each requiring students to care for two SPs and to use telehealth to communicate with other professionals (NP, RT, and SW). Each week, students will rotate to these simulations as part of NURS 4450 (6 groups of 9-10 students). During each simulation day, students will participate as care providers (nurse, charge nurse, and nursing assistant) and observers. To aid in de-briefing discussions, observers will complete the Creighton Competency Evaluation Instrument to assess care performance (Hayden, Keegan, Kardong-Edgren, & Smiley, 2014) and the ISBAR Interprofessional Communication Rubric to assess interprofessional communication (Foronda et al., 2015).

The simulation interventions and SP scripts were designed using International Nursing Association for Clinical Simulation and Learning (INACSL) Simulation Standards of Best Practice (INACSL, 2016). In Simulation#1, the SPs will portray an elderly patient with chronic



pulmonary disease (requiring RT) and a patient with uncontrolled diabetes (requiring NP). In Simulation#2, the SPs will portray a homeless patient with tuberculosis and HIV (requiring SW) and a patient with an acute stroke (requiring NP). The simulation laboratory was made to look like a hospital unit and supplies to promote realism have been incorporated (such as moulage, bandages). To facilitate experience with interprofessional collaboration, iPADs provided by the SON will be used to consult with NP, RT, and SW collaborators via FaceTime. The collaborators validated simulation content for their profession and participated in Fall 2018 simulation pilots, and have agreed to participate in Spring 2019. Participating colleagues are Ms. Leslie Sossoman (SON NP Program), Ms. Amanda Dexter (CHHS RT Program), and Dr. Shanti Kulkarni (CHHS School of SW).

**Procedures.** A graduate assistant (GA) will be trained to assist with data collection and management (Qualtrics sites and focus groups). The study will commence in January 2019. During orientation to NURS 4450, the PI will explain the study and invite all students to participate. Students will be required to sign the informed consent if they choose to participate. Participants will be provided the link to Timepoint1 Qualtrics site where they will create a 4-digit number to identify responses across timepoints and then take the demographic questionnaire, ICCAS, and report amount of clinical interprofessional collaboration prior to NURS 4450. Over the next six weeks, participants will rotate to Simulation#1 and receive the link to Timepoint2 Qualtrics site to take the SSSCL. Then, participants will rotate to Simulation#2 for six weeks and receive the link to Timepoint3 Qualtrics site to again take the SSSCL.

At the end of the semester during a NURS 4450 meeting, participants will be provided the link to Timepoint4 Qualtrics site to take the ICCAS and report amount of clinical

interprofessional collaboration during NURS 4450. The PI will then explain the focus groups and inform participants they will receive a \$10 gift card upon focus group completion to thank them for their time (approximately 45 minutes). Participants who volunteer for a focus group will provide their email address and be contacted by the GA to confirm their date (up to 4 focus groups will be conducted for small group size). The GA will facilitate and audio-record each focus group and to ensure accurate data for analysis, recordings will be forwarded to a professional transcriptionist who will provide a verbatim transcript.

### **Evaluation**

All quantitative data will be transferred from Qualtrics to SPSS, and analyses will be conducted by the PI. Descriptive statistics will be used to present demographic information, individual items and total scale scores (ICCAS and SSSCL), and amount of clinical interprofessional collaboration. To evaluate for statistically significant changes, RM-ANOVA will be used with  $p < 0.05$ .

Qualitative analysis will be conducted by the PI and Co-I. Analysis of the transcripts will use Giorgi's (1985) methods to identify themes gleaned from participant words. The data will first be reviewed individually and then the PI and Co-I will meet to discuss the data to form themes, thus enhancing rigor and trustworthiness through investigator triangulation. Themes will be presented with accompanying participant quotes to promote rich understanding.

### **Knowledge Dissemination**

This will be the first known study to evaluate multi-patient, SP simulations using telehealth to promote interprofessional collaboration. Dissemination of findings is important to inform educational practices of nurse faculty. A manuscript will be prepared by the PI and Co-I

for submission to the international journal *Clinical Simulation in Nursing*. An abstract will be submitted for podium presentation at the annual INACSL conference in 2020.

### **Human Subjects**

This study has been reviewed and deemed exempt by the UNC Charlotte IRB. Although all students in NURS 4450 will be required to participate in the simulations, participation in data collection is voluntary. The simulations are not graded, and the PI and Co-I do not submit grades for final-semester BSN students. Signed consent forms will be stored separately from data, and no identifying information will be collected in Qualtrics or during focus groups. Qualtrics and the computer to record focus groups are both password-protected. Upon completion of data collection, data will be transferred into SPSS and deleted from Qualtrics. Survey data and transcripts will be stored in a locked cabinet in the PI's office for 3 years and then destroyed. Email addresses collected to schedule focus groups will be destroyed.

### **Extramural Funding**

Findings of this study will be important to seek extramural funding. Specifically, funding will be sought for longitudinal study of the effect of interprofessional simulations on student learning outcomes and on successful transition to professional nursing practice.

### **Timeline**

<b>Months</b>	<b>Study Component</b>
Prior to Funding	IRB approval obtained; Simulations piloted for refinement
Upon Funding Notification	Hire/train GA; Build Qualtrics sites
1/2019	NURS 4450 classroom orientation with PI; Obtain informed consent, Timepoint1 (Interprofessional Pre-Test) data collection
1/2019-2/2019	Rotation to Simulation#1 (6 weeks) with Co-I; Timepoint2 (Post-Simulation#1) data collection
3/2019-4/2019	Rotation to Simulation#2 (6 weeks) with Co-I; Timepoint3 (Post-Simulation#2) data collection
4/2019	NURS 4450 classroom meeting with PI; Timepoint4 (Interprofessional Post-Test) data collection; Focus group sign-up

5/2019	GA conducts focus groups; Send to transcriptionist
5/2019-8/2019	Quantitative data analysis by PI; Qualitative data analysis by PI and Co-I
8/2019-9/2019	Prepare/submit manuscript for publication
10/2019	Prepare/submit abstract for June 2020 INACSL podium presentation

### References

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