# Section 1. Cover Sheet

* Principal Investigator Name: Brower, Jennifer
* Position title: Clinical Assistant Professor
* School: School of Nursing
* Department: Science of Nursing Care
* Project title: Obstetric Considerations in Acute Care Nurse Practitioner Curriculum
* Amount requested (funds from CTL only): $xxxxx
* Co-Principal Investigators (Name, Title, School, Department, Email):
* Name: Caitlin Luebcke
Title: adjunct lecturer
Email: caitdavi@iu.edu
School: School of Nursing
Department: Science of Nursing Care
* Other Key Personnel (Name, Title, School, Department, Email):
None
* Description of courses or curriculum involved in the project, including enrollment figures in the past three years.
The courses involved in the project are the clinical management courses in the adult gerontology acute care nurse practitioner clinical track as below. These courses focus on direct care of the acutely ill adult and gerontology patient in the final phase of the MSN program. NUR-S S674 Management of the Acutely Ill Adult/Gero I NUR-S S675 Management of the Acutely Ill Adult/Gero II NUR-S S675 Management of the Acutely Ill Adult/Gero III Enrollment: 2021 – 16 2022 – 15 2023 - 10
* Does this proposal focus on integrating ePortfolios within a course, multiple courses, or a program? No

# Section 2. Abstract (250 words maximum)

Historically, adult-gerontology acute care nurse practitioner (AGACNP) program curricula have notemphasized care of critically ill obstetric patients. Rising maternal morbidity and mortality rates, along with increased volume of obstetric patients requiring care outside of obstetric units, prompts the question of who’s purview the care of this vulnerable patient population becomes. The IUSON Master of Science in Nursing program offers the Adult-Gerontology Acute Care Nurse Practitioner (AGACNP) clinical track. The clinical management courses of this specialty track span a 12-month period and include instruction for the clinical management of acutely ill adult and geriatric patient population but did not previously include the adult obstetric patient. Results from a pilot study of the current AGACNP cohort demonstrated knowledge gaps and low levels of self-efficacy in the majority of AGACNP students regarding care of the critically ill obstetric patient. The investigators will be implementing obstetric considerations into each body-system module and high-fidelity simulation scenarios into the clinical management courses in the AGACNP track to provide foundational knowledge in caring for the critically ill obstetric patient. The impact of this curriculum addition will be evaluated utilizing a knowledge-based pre/posttest and modified self-efficacy tool pre- and post- instruction.

# Section 3. Rationale and Literature Review (250 words maximum)

**What course or curriculum enhancement are you proposing? Why is this enhancement needed? What do you expect to change – in terms of your students’ learning, your program, and your teaching practice?**

The teaching intervention will be implemented into the 3 existing hybrid clinical management courses, utilizing various methods of teaching to enhance student learning, as described in detail below. These courses are specific to acute and critical care, with content development based on Bandura’s social learning theory and Kolb’s experiential learning theory. The courses facilitate application of patient evaluation, clinical knowledge, diagnostic reasoning, and treatment plan development required for nurse practitioner practice. As a collaborative work, the course content would be developed by AGACNP faculty, with input from content experts, where applicable.

The proposed curriculum enhancement will provide AGACNP students with foundational knowledge needed to facilitate the development of critical thinking skills that are needed to care for a vulnerable, adult patient population by utilizing the existing course format. Various teaching methods will introduce students to considerations in care of the critically ill obstetric patient with opportunities for in-depth discussion and knowledge application in a high-fidelity simulation setting. Obstetric considerations will be introduced in a body-systems module format, allowing for repetition of content delivery across the entirety of the clinical management courses for optimal knowledge retention during didactic instruction. This content increases in complexity each semester, allowing for the student to build upon foundational knowledge as they progress through the clinical management courses. Historically, educational content delivery on care of the critically ill obstetric patient has not been present in acute care nurse practitioner curriculum and currently there is a dearth of literature on the topic.

**Synthesize relevant literature with citations that support the proposed enhancement and intended outcomes in the same way you address existing knowledge in any research project in your discipline. Stress recent and comprehensive literature.**

Maternal mortality has risen in the United States from 7.2 deaths per 100,000 live births in 1987 to 23.8 deaths per 100,000 live births in 2020.2,6,10,11 Obstetric patients are more likely to be of advanced age, with chronic illnesses, and using reproductive technologies than in previous years.3,4,5,9,16  An increase in premature infants surviving into adulthood, with a variety of health consequences, are becoming pregnant.15 Additionally, the COVID-19 pandemic increased the risk for hospitalization, intensive care unit (ICU) admission, severe complications, and death in unvaccinated obstetric patients.7

The majority of obstetric patients with critical illness are transferred to general ICU, but few studies have assessed nurse practitioner (NP) or NP student attitudes toward caring for these patients. Prior studies have demonstrated that registered nurses (RN) working in ICU, those most likely to be enrolled in acute care NP programs, feel a lack of competence.13

A recent study, using in-person instruction and written materials as educational tools,  demonstrated that a single educational session on this population has a positive impact on nursing perceived self-efficacy.14 This study also showed that participants were projected to retain information for approximately 15 weeks, the average length of an academic semester, based upon a post-testing interval of 3 weeks and optimal spacing for information retrieval of approximately 10-20% of desired retention. This could be improved with additional spacing of learning experiences and testing.8In addition, simulation is shown as a valuable pedagogical tool for acquisition of psychomotor and cognitive skills and clinical application in healthcare education. 1,17

# Section 4: Project Description (1000 words maximum)

**State measurable project goals that will help you realize the course/curriculum enhancement.**

1. Provide student opportunities for experiential and social learning in a safe learning environment – by utilizing these frameworks, students will learn management of the critically ill obstetric patient through high-fidelity simulation and peer interaction in an in-person laboratory setting during the final academic year of the AGACNP clinical track.
2. Enhance existing AGACNP curriculum – by providing students with foundational knowledge in caring for critically ill obstetric patients in a clinical practice setting. Combining the expertise of faculty and collaborating disciplines, students will receive repetitive content focused on care of the critically ill obstetric patient and apply knowledge to clinical scenarios in didactic and clinical settings.
3. Improve student self-efficacy in caring for the critically ill patient population - allowing students to apply knowledge utilizing a variety of coursework, informing professional practice, and increasing students’ self-efficacy level when caring for critically ill obstetric patients.
4. Promotion of inclusivity and equity – by providing students with course content instructing on diverse obstetric patient populations and inclusivity of patient and families respecting cultural, ethnic, and religious preferences. Social determinants of health, healthcare disparities, end of life discussion, and diversity of this patient population will be embedded throughout the course content of this project.

**For each project goal, describe the specific activities you will engage in to achieve the goal.**

**Project Goal #1:** Provide student opportunities for experiential and social learning in a safe learning environment

Students will participate in simulation and procedural skills with each in-person instruction session in groups of 3-5 learners. Simulation scenarios include a pre-brief, where the student is given information on the patient. Students evaluate the patient based on vital signs and physical exam. The student formulates a diagnosis and treatment plan for the simulation patient. Following the conclusion of the simulation, students participate in a faculty-led debriefing session with in-depth discussion of patient evaluation, diagnostic testing, differential diagnosis, clinical management, and safe-handoff using the situation, background, assessment, and recommendation (SBAR) format. Formative assessment will be performed using existing simulation rubrics.

**Project Goal #2:** Improve student self-efficacy in caring for the critically ill patient population

Repetition of the above activities are designed to enhance the students’ self-efficacy in caring for critically ill obstetric patients. Lecture content will increase in complexity, aligning with the current course curriculum. Instructional sessions will be led by AGACNP faculty and guest speakers as able. At the conclusion, students will be instructed on obstetric considerations for disease processes, including prevention, diagnostic reasoning, differential diagnoses, and treatment interventions. Clinical case applications will be assigned to apply clinical knowledge and will include at least one obstetric consideration, in multiple choice or short essay form. Students will submit on Canvas for faculty evaluation.

**Project Goal #3**: Promotion of inclusivity and equity

All of the didactic and simulation activities will address diversity, equity, and inclusion as they pertain to the obstetric patient. This content will be embedded in classroom activities with opportunity for class discussion. Utilizing time in the classroom setting for instruction on care of critically ill obstetric patients allows students to verbalize ideas, theories, and develop diagnostic reasoning skills in a safe environment with faculty oversight. Creating a framework for student reflection and debriefing sessions to evaluate performance in high-fidelity simulation activities further enhances student knowledge.

**Project Goal #4:** Enhance existing AGACNP curriculum

Didactic lecture content will be prepared by faculty as pre-recorded online lectures or for in-class presentation. Social determinants of health and the impact on the obstetric patient population will be addressed throughout the course curriculum. In-person lectures will make up the entirety of scheduled class time, with opportunities for discussion. Lecture content will discuss diversity, equity, and inclusion as they pertain to students and patients. Where applicable, the AGACNP track coordinator may contact clinical experts to deliver course content regarding care of the critically ill obstetric patient, with an interprofessional practice and education focus.

**Describe a plan for sustainability of the curriculum enhancement beyond CEG project timeline, including references to ongoing professional development, assessment, partnerships, and growth.**

Sustainability of the project will be through continuing education of AGACNP faculty and ongoing scholarship, using original research and dissemination of scholarly work locally and nationally. Upon completion of the content and coursework, the content will be written into course expectations, competencies, and assignments, with revisions reflecting evidence-based data from professional organizations, such as American College of Obstetrics and Gynecology and Society of Critical Care Medicine. Collaborative efforts through interprofessional practice and education will also lead to the sustainability of this course content long-term, with growth potential across undergraduate and graduate programs within the School of Nursing and beyond.

#  Section 5. Evaluation/Assessment Plan (500 words maximum)

**What will success in your CEG project look like?**

The impact of this curriculum enhancement will be assessed in multiple phases, utilizing direct and indirect measures of evaluation to assess student learning. Direct measures include student performance in leading high-fidelity simulation experiences, oral case presentation during simulation debriefing sessions, and quizzes. In addition, direct evaluation will also be assessed by comparing pre and post content delivery self-efficacy student surveys and knowledge assessment testing. Indirect measures can be obtained through student course grades, information from student discussion during debriefing sessions of high-fidelity simulation exercises, and review of previous student course evaluations. The investigators acknowledge potential confounding variables when comparing aggregate data from student course evaluations.

**What metrics will you use to determine the extent to which your project goals were achieved?**

**Goal:** Provide student opportunities for experiential and social learning in a safe learning environment

* **Evaluation/Assessment:** This is measured by formative and summative assessment using a pre-existing rubric to evaluate student performance in high-fidelity simulation.
* **Analysis Method:** This data will be analyzed using descriptive statistics, as there will be no pre- and post-summative assessment in the curriculum for simulation.

**Goal:** Improve student self-efficacy in caring for the critically ill patient population

* **Evaluation/Assessment**: Allowing students to apply knowledge utilizing a variety of coursework, the expected outcome is that students will report improved self-efficacy scores at the conclusion of the courses in a hybrid learning format. This will be measured by comparing pre- and post-instruction self-efficacy (ONSE-APRN) scores at the conclusion of students’ final year in the MSN program.
* **Analysis Method**: Data will be analyzed using Wilcoxen signed rank test, with a paired data set to evaluate pre-posttest self-efficacy differences. The self-efficacy score will be analyzed using Kruskal-Wallis testing and Mann-Whitney U will be used to perform pairwise comparisons of self-efficacy scores pre and post course content delivery.

**Goal:** Promotion of inclusivity and equity

* **Evaluation/Assessment**: Diversity, equity, and inclusion (DEI) will be embedded throughout the course content, with indirect measures taken from course evaluations pertaining to barriers to healthcare and mitigation of barriers during course instruction. Specific questions regarding DEI on course evaluation will be included. Evaluation of high-fidelity simulation DEI experiences will be through summative score measurement based on simulation rubric and formative evaluation.
* **Analysis Method:** Descriptive statistics will be used to evaluate student knowledge of diversity, equity, and inclusion pertaining to the obstetric patient in knowledge-based testing. Indirect measures can be obtained through student course grades, information from student discussion during debriefing sessions of high-fidelity simulation exercises, and review of previous student course evaluations. Content analysis will be used for qualitative data and emerging themes will be analyzed by the investigative team, including mitigation of barriers (potential or experienced) of the student and/or patient.

Goal: Enhance existing AGACNP curriculum

* **Evaluation/Assessment:** A pretest of knowledge in caring for the critically ill obstetric patient will be distributed to students during NUR-S S674. A posttest will be completed prior to completion of NUR-S S676 to establish improvement in student knowledge at the conclusion of the courses.
* **Analysis Method:** Descriptive statistics will be examined, as well as analysis of covariance to compare pre-and post-test scores. Content analysis will be performed by the investigative team for emerging themes of the course evaluations.

# Section 6. Dissemination Plan (250 words maximum)

The investigators have published a summary of incorporating obstetric considerations into acute care nurse practitioner curriculum as a “Teaching Tip” in *Nurse Educator*online (ahead of print) May 10, 2023. As a result, the investigators were invited to provide a video abstract presentation and a podcast interview with Nurse Educator in January 2024, currently under production. The primary investigator presented preliminary findings of the pilot study to the Faculty Innovations in Nursing Education (FINE) group on July 20, 2023, at IUSON. The investigators delivered podium and poster presentations of preliminary data and current structure of the AGACNP curriculum with an exemplar of obstetric content at the 48th Annual Professional Nurse Educators Group Conference on September 15, 2023. The primary investigator has submitted an abstract proposal for podium and/or poster presentations at the 2024 National League for Nursing Summit in San Antonio, Texas on the utilization of high-fidelity simulation in teaching care of the acutely ill obstetric patient population for dissemination at the national level.

Across the IUSON core campus, the investigators plan to demonstrate to nursing faculty how care of the acute and critically ill obstetric patient can be implemented in all graduate nursing tracks and in the pre-licensure nursing program, as the content pertains to multiple nursing specialties. This will be acheived through in-person and virtual presentation with a manuscript to follow detailing this acheivement. The investigators will collaborate with undergraduate faculty to facilitate undergraduate nursing students to participate in simulation and skills laboratory experiences in caring for acutely ill obstetric patients.

The investigators will submit a manuscript detailing results of the pilot program to Nurse Educator, The Journal of the American Association of Nurse Practitioners, Journal for Nurse Practitioners, or Dimensions in Critical Care Nursing.*Further, the investigators plan to submit an abstract proposal for the 2025 Plater-Moore Conference on Teaching and Learning.*

The investigators will communicate to the editorial board of Nurse Educator journal for further dissemination in the form of abstract video presenations and podcast interviews, to reach nursing faculty on a national level.

# Section 7. Project Timeline (250 words maximum)

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| May 2024 | *Dr. Brower*Prepare syllabi for NUR-S S674-S676 to reflect revisions and course expectations. Conduct final ONSE-APRN and CCOB knowledge-based posttest for 2023-24 cohort.Conduct initial ONSE-APRN and knowledge-based pretest for 2024-25 cohort. *Drs. Brower and Luebcke*Prepare online and in-person lecture content for S674-S676 course modules. Analyze data from 2023-24 pilot study. |
| May-June 2024 | *Dr. Brower*Develop high-fidelity simulation scenarios.Begin development of CCOB case studies and signature assignments. |
| May-August 2024 | *Dr. Brower*Execute NUR-S S674 curriculum. Finalize high-fidelity simulations and case studies for NUR-S S675.Faculty will participate in ACLS-Obstetric course and certification |
| June 2024 | *Dr. Brower and/or Dr. Luebcke*Tentative dissemination of project at AWHONN 2024 Annual Conference. |
| July-August 2024 | *Dr. Brower*Review student course evaluations from 2023-24 cohort. Prepare manuscript of pilot study for journal submission. |
| Aug-Dec 2024 | *Dr. Brower*Execute NUR-S S675 curriculum. |
| Oct-Nov 2024 | *Dr. Brower*Identify and recruit guest lecturers for NUR-S S676, if needed.Finalize CCOB high-fidelity simulations and case studies for NUR-S S676. |
| January-May 2025 | *Dr. Brower*Execute NUR-S S676 curriculum. |
| May 2025 | *Dr. Brower*Conduct final ONSE-APRN and CCOB knowledge-based posttest for 2024-25 cohort.Conduct initial ONSE-APRN and knowledge-based pretest for 2025-26 cohort. *Drs. Brower and Luebcke*Analyze data from 2024-2025 cohort study.  |
| May-June 2025 | *Dr. Brower*Review data and revise curriculum.  |

# Section 8. Budget and Justification

**Faculty Stipend**

Faculty stipend of a total of $xxxxx is requested to pay for Dr. Brower’s time for content development and administrative responsibilities. Content development includes development and organization of curriculum, signature assignments, high-fidelity simulation scenarios, clinical-based knowledge examination content for student evaluation pre- and post- content delivery and unfolding case studies. Her contribution to didactic lecture content will be in the cardiovascular, gastrointestinal, integumentary, and musculoskeletal components of the body-systems modules. She will also develop new didactic content for DEI, trauma, and intimate partner violence. As the principal investigator, she will oversee conduction of survey and knowledge-based examination, data management (data analysis from knowledge-based examination and ONSE survey), development of dissemination presentations and manuscripts, aggregate data from student course evaluations, preparation of course syllabi, and execution of curriculum in each course. This will be requested as a cost-match from IUSON.

Faculty stipend of $xxxx is requested to pay for Dr. Luebcke’s time for content development, revision of body-systems modules, and assisting with administrative duties. Her contribution to the body-systems modules will be the pulmonology, neurology, immunology, hematology, renal, endocrinology, genitourinary, and reproductive components, and development of new course content for fundamentals in caring for the acutely ill obstetric patient. She will assist with evaluation of student self-efficacy data and data management.

**Travel**

$xxxx is requested for dissemination of the project at a national conference. This includes conference registration, lodging, and air travel for one investigator.

**Additional funding**

$xxxx is requested for the purchase of textbooks specific to critical care obstetric management for the project team to utilize as resources for content development. $xxxx is requested for the development of materials for dissemination poster presentation. $xxxxx is requested for Dr. Brower’s participation in an obstetric advanced cardiac life support course, with certification and a simulation training course to develop skills for authoring simulation scenarios and facilitating student learning with simulation.

# Section 10. Results of Previous CEG Funding

No previous CEG funding has been received from the Center for Teaching and Learning.