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Overuse of Broad-Spectrum Antibiotics in the Acute Care Setting

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Overuse of Broad-Spectrum Antibiotics in the Acute Care Setting

A DNP Project Submitted to the
Graduate Faculty
Of Jacksonville State University
In Partial Fulfillment of the
Requirements for the Degree of
Doctor of Nursing Practice

By

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Jacksonville, Alabama

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Abstract

Background: The identified problem discussed for the DNP project is antimicrobial resistance in acute care settings associated with the overuse of broad-spectrum antibiotics. Antibiotics are often started before obtaining cultures, thus skewing the results. The overuse of antibiotics can lead to almost complete resistance. In a study reviewed by Olesen, et al., performed in 2011, 34% of people received an antibiotic, and 10% of people received 57% of all antibiotic prescriptions (Olesen, et al., 2018). According to the World Health Organization (WHO), for example, a 92% resistance rate prescribing Ciprofloxacin for urinary tract infections with an E.Coli bacteria. (World Health Organization, 2021).

Purpose: The DNP project focused on monitoring the timing of obtaining various cultures versus the timing of antibiotic administration to implement de-escalation of broad-spectrum antibiotics. The staff's education to obtain cultures before the administration of antibiotics will be a pillar of this project.

Methods: The primary intervention of this project was to initiate a staff huddle for participants, review guidelines and project goals, and issue flowsheet/checklist badge buddies for staff to wear. The nursing staff used this badge buddy when they are at the bedside collecting cultures or administering antibiotics to guide the clinical priority and perform tasks in the correct order.

Results: The results yielded a drastic decrease. Originally the rate of administering antibiotics prior to culture collection occurred at a rate of 78%. After the intervention of this DNP project was implemented, the rate of occurrence was 10%.

Conclusion: Implemented staff huddles and providing a flowsheet/checklist badge buddy offered an additional step of confirmation they are following correct guidelines which decreased rate of administering antibiotics prior to culture collection by 68%.

Keywords: Hospitalized, antibiotics, baseline cultures, prior, current practice.

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Overuse of Broad-Spectrum Antibiotics in the Acute Care Setting

The identified problem of the DNP was the development of antimicrobial resistance in acute care settings associated with broad-spectrum antibiotics. Patients in acute care or hospital situations are at risk for a lower immunity threshold due to co-morbidities, other infections, or current infections. Typically, a broad-spectrum antibiotic is started in the ER when recognizing sepsis, urinary tract infections (UTI), pneumonia, or other serious infections is considered. Unfortunately, these antibiotics are given prior to culture collection, thus affecting the sensitivity. Days later, more cultures are drawn, showing new or worsening infections. The world of medicine is currently in a "discovery void," meaning the last time a new novel antibiotic drug class was discovered was in 1987 (ReAct, 2021). We have not made any considerable advancements in medication discovery, so the antibiotics we have, if overused or misused, will soon become ineffective. At minimum, 30 percent of antibiotics prescribed to patients today in the United States are useless, (Centers for Disease Control and Prevention, 2016).

Background

Best practice requires that all cultures, including blood, sputum, and urine would be collected before initiating antibiotics to prevent a false or skewed reading (Sheer, et al., 2018). Infection Discovery (ID) society studied patients were submitted to blood cultures prior to antibiotic administration, and the other set after. Once resulted, there was an undeniable difference between the two. The cultures collected after antibiotics had been administered lacked a significant amount of clinical information, which made it much harder to target the organism needed for treatment decisions (Brooks, 2019). Dr. Emily Waner (2021) discussed the impact of sensitivity post-antibiotic administration in the hospital setting. The conclusion was "blood

cultures were positive for one or more microbial pathogens in 31.4% of patients when drawn before antibiotics and in 19.4% of patients when drawn after antibiotics (absolute difference of 12.0%)" (Waner, 2021 p. 1).

The DNP project is crucial for the healthcare system as its goal is to decrease overuse of medications. "The fact that bacteria develop resistance to a drug is normal and expected. But the way that drugs are used affects how quickly and to what degree resistance occurs", (Mayo Clinic, 2022, p. 1). Further outcomes that could also be considered with completion of this project is decreased length of patient stay as well as decreased costs to the healthcare system. Per the Oxford Academy, "Medication expenditures total $300 billion annually in the United States and are 11% of overall healthcare costs. The anti-infective class of medications, including antibacterial agents, is consistently one of the top therapeutic categories in expenditures" (Suda, et al., 2017, p. 185).

Observation firsthand has shown the need for this project at this project site. Many times, nurses and phlebotomists in the emergency department and critical care settings simultaneously work together but not necessarily in harmony. In multiple incidences, one nurse will be administering medications, including antibiotics, while another is drawing cultures and labs, ultimately affecting the timing and outcomes of the cultures.

Needs Analysis

The current impact of the problem is the need for obtaining cultures and samples at a more precise time. We can better understand the microorganisms and use the appropriate antibiotic if done correctly. If collection is adequately performed, this will decrease overall costs to the healthcare system because it will decrease overuse of antibiotics, overall costs of care, and length of stay in the hospital as well as decrease side effects and other opportunistic infections

for the patient (Suda, et al., 2017). There were an estimated 4.95 million deaths associated with bacterial AMR in 2019, including 1.27 million deaths attributable to bacterial AMR, (Murray, et al., 2022).

This study was conducted in the acute care setting, specifically the emergency departments and critical care. The population observed include males and females of any race, ages 18-99. The challenge with using these clinical guidelines, especially in practice, is the lack of staff and patient compliance. Patients do not want to be told they have a viral infection and to "wait it out." People believe taking antibiotics, even viral infections, will make them feel better. Education of staff may present a problem in future cases as staff have routines and may not be open to change, however the participating staff at this site were open and willing to assist.

Broad-spectrum antibiotics are prescribed until cultures have resulted, and then a more specific antibiotic is narrowed down. However, cultures are sometimes drawn after the antibiotic has begun infusing, thus skewing results. This issue affects the local, state, and national levels and the antimicrobial world. Antimicrobial resistance is a global public health concern, and this is moderately due to the abuse of antibiotics, (Abbara, et al., 2022). According to WHO, there is a growing list of common infections – such as pneumonia, tuberculosis, blood poisoning, gonorrhea, and foodborne diseases – that are sometimes impossible to treat because antibiotics have become less effective (World Health Organization, 2020). Antimicrobial resistance (AMR) is one of the greatest threats to human health worldwide. For example, methicillin-resistant *Staphylococcus aureus* (MRSA), kills more Americans every year than emphysema, Parkinson's disease, and homicide, (Llor & Bjerrum, 2014).

WHO warns about resistance to some of the strongest antibiotics on the market. Just a few years after the first antibiotic, penicillin, became widely available, penicillin-resistant

infections began to emerge. These were caused by the bacterium Staphylococcus aureus (S. aureus). These infections range from urinary tract infections to bacterial pneumonia, which are both common diagnoses. Methicillin, one of the strongest in the arsenal of drugs to treat these types of infections, are no longer effective against some of these strains of S. aureus, (U.S. Food and Drug Administration, 2016).

The Joint Commission National Standards in both Laboratory National Patient Safety Goals and Nursing Care Center Safety Goals mention the aim to improve staff communication (The Joint Commission, 2023). Not only should this include communication between nurses, etc. but also relaying lab results in a timely manner. Regarding this project, it is important the moment a result for a blood/urine/sputum culture result, the provider be made aware, that way antibiotic use may cease or be downgraded.

By addressing the overuse of broad-spectrum antibiotics in the acute care setting, we can assume there will be a decreased length of hospital stays for patients, decreased amount of money spent on antibiotic use, decreased money spent on multiple sets of various cultures that were inaccurate to begin with, decrease the risk for patients to acquire superinfections, as well as decrease the risk for antimicrobial resistance in the future. Expenditures for medications in the United States total more than $300 billion annually, which is equivalent to 11% of total healthcare costs. The antibiotic drug class is one of the top categories in expenditures (Suda, et al., 2017).

QSEN competencies include six important elements to assist in improving the quality and safety of healthcare systems (QSEN, 2020). The type of project being performed is a quality improvement project. Centers for Medicaid and Medicare Services (CMS) mention that quality improvement should be a standard, as the systematic change will provide the same outcomes and

be aligned with evidence-based practice. To improve the overall health care system, quality improvement (QI) is crucial. QI provides a standard of care and standard process that allow a reduction in variation, accomplish predictable results, and improve overall outcomes for patients and the healthcare system. (CMS, 2021).

Problem Statement

Among rural emergency departments and critical care patients, does collecting blood, urine, and sputum cultures prior to initiating antibiotic therapy increase the de-escalation of broad-spectrum antibiotics in a 4–6-week time frame?

Addressing the issue of overusing antibiotics related to the lack of appropriate timing of culture collection requires collaboration with various providers and healthcare team members, including a DNP-prepared NP, Medical Doctors (MD), quality control, and Registered Nurses (RN). First, we recognize “red flags” in the collection of cultures. These red flags vary from the timing of the collection of cultures to inappropriate drawings. After tracking and identifying risks and deficits, new action plans were put into place. Timing is extremely sensitive when it comes to the collection of cultures. Patients were submitted to multiple sets of blood draws for cultures. One taken prior to antibiotic administration and the other after administration. Evidently the sample taken after antibiotics were administered have insufficient data to indicate which organism needed to be treated. This makes it difficult for providers to recognize what they are treating. (Brooks, 2019).

Aims and Objectives

The aims of the DNP project were to evaluate whether implementation of staff huddles and badge buddies would be effective in de-escalating the incidence of antibiotics being given prior to culture collection. This was done by educating staff in multiple staff huddles about current rate

of incidence, and proper guidelines, as well as issuing badge buddies with correct flow of events. After this was accomplished, weekly staff huddles were performed to ensure not questions or concerns were voiced by staff.

Review of Literature

Antibiotics are often prescribed by providers in the emergency department with suspicion of systemic infections, fever, and other symptoms, as it is standard of care. However, antibiotics are repeatedly prescribed in inappropriate incidences, including viral infections, various inflammatory states, or can be administered at inopportune times.

It is understood, typically, that cultures are obtained prior to antimicrobial administration to ensure the most accurate results. While obtaining cultures before initiating antibiotics is essential, the results are just as crucial. Sensitivity reports should be considered, as a lack of adequate obtaining cultures can lead to inaccurate results, such as high levels of skin containments and lowered levels of microorganisms, which could lead to inaccurate prescribing (Koh, J., Quek, H., Lateef, F., 2019).

Once the preliminary sensitivity report is acquired, the organism identification is important to note as it influences the patient's diagnosis, therapy type, length, and prognosis (Giuliano, Patel, Kale-Pradhan, 2019). Aside from costly antibiotics, other sources of financial burden are present, such as waste costs, additional working hours for staff, and supplies.

Once the baseline culture is obtained and the patient is being treated, it is paramount to re-evaluate cultures to ensure the most precise antibiotic is continued. Looking at the entire picture of the patient, accuracy of cultures, etc., is also considered because studies mention after drawing cultures at various times to de-escalate antibiotics at the 48-hour mark, as the time to peak is lower (Lambregts, M., et al., 2019).

Antimicrobial stewardship is necessary as a provider on the inpatient and outpatient spectrum to ensure we are not part of the resistance. Several components are required for optimal antibiotic stewardship. Rapid identification, standard of treatment, pharmacokinetic and pharmacodynamic characteristics are pillars of positive stewardship but also improving the administration of unnecessary antibiotic use. Other chief components include shortening the duration of antibiotic use, and ultimately reducing the numbers of patients on antibiotics. (Luyt, et al., 2014). The concern for resistance should not only be a concern for the local, state, and national levels but also be considered worldwide.

Theoretical Framework

The theorist chosen is John Kotter and his Eight Step Model theory. Kotter focused on creating a sense of urgency, team building, empowerment, celebrating short-term wins, and not letting up (Prachi, 2015). The model relates to the current DNP project because the change requires a sense of urgency to change and communicate the vision with all staff involved. It is also essential that small targets, or short-term milestones, are celebrated so those involved are reassured that they are doing the right thing.

Kotter's theory provides multiple steps to follow to ensure success. He mentions, in each step, criteria or explanations to assist someone needing to implement change step-by-step. The advantages or supremacy of this theory are eight simple goals that are clear and easy to understand, the significance of staff or participant involvement to ensure success, and detailed attention to preparation and education prior to making the change rather than just changing the issue and wishfully waiting (Aktas, et al., 2022).

In this project, each theory step explains significance and validity by portraying various points needed to ensure the study's success. For example, step one is about creating a sense of

urgency. The need for change is created by identifying an issue and relaying that to the participants and staff. Step two is building a team, which ideally would be charge nurses guiding staff as they already have a rapport with one another. Step three is developing the vision, where the researcher will relay change, needs, and other essential items to the leader, and in step four, they will then relay that to the staff, so all are on the same page. Step five will address and identify barriers, while step six will communicate small wins and provide those benchmarks. Finally, step seven will consider the need for continual improvement and not to "let up" once the research is over. Furthermore, step eight will ensure that change becomes integral to the workflow (Prachi, 2015. Figure 1).

The eight-step model theory guides the researcher in filling gaps in knowledge and practice. This theory has several steps, particularly steps five and six, that assist the researcher with participants. Step five mentions ensuring organization and structure are in place and align with the vision of the goal trying will be reached (Prachi, 2015, p. 1). Transparency and clear, concise targets should be communicated with staff. The researcher, or one implementing change, can also check periodically for barriers, those resisting the change, and either remove those barriers or assist with educating those opposing the change. Step six encourages and creates short-term wins, so participants have that sense of victory throughout the process (Prachi, 2015, p. 1).

The broad guidelines and general ideas of Kotter's theory allow extensive and diverse research to conform to the theory's many steps. The eight steps are vague and provide indistinct explanations so that they can be used in various studies or research. Kotter's eight steps are easy to follow and convey to participants, thus decreasing time spent teaching the theory, allowing

those among the participants to become leaders for the change, building or maintaining rapport, as well as keeping participants motivated with short-term wins (Aktas, et al., 2022).

The theory provides structure to define how the scholars shall approach the thesis by having each necessary step broken down to be better understood by the participants and researcher. Each of the eight steps provides instruction and reasoning to allow the researcher to convey all imperative components to ensure the project's success.

Methodology

The DNP project's goal was to de-escalate broad-spectrum antibiotics by collecting cultures before antibiotic administration. The primary intervention of this project was to initiate a staff huddle for participants, review guidelines and project goals, and issue flowsheet/checklist badge buddies for staff to wear. The nursing staff were able to use the badge buddy when they were at the bedside collecting cultures or administer antibiotics to assist with critical thinking. Participants were those in the emergency department (ED) and those admitted to the critical care units (CCU).

All patients admitted for diagnosis warranting antibiotics, have cultures pending or resulted, and time stamps for antibiotic administration and culture collection have had charts reviewed. Providers and nursing staff on the patient care team at this project site were included in a huddle explaining the current practice, statistics, and goal of the Doctor of Nursing (DNP) project. The student conducting the project will relay findings to the preceptor, DNP Chair, CNO and Quality Improvement Director.

Setting

The setting of this DNP project is an acute care hospital setting in rural Northeast Alabama, in both the ED and CCU settings. Need for the project as well as consent and support

for the project was obtained by the Chief Nursing Officer (CNO). See Appendix A. The primary patient focus was those in both units, where the ED has sixteen beds, and the CCU has fifteen beds. The number of patients ranges daily; however, according to the Quality Improvement Director, the flow of patients is consistent.

Population

The population of interest and education was staff nurses in the ED and CCU settings and providers on the patient care team. The nurses who worked the day shift were included in the project. The daily staffing ratio is usually 4:1 in the ED and 2:1 in CCU; therefore, there are an expected number of seventeen employees (to include charge nurses) who range from full-time (FT), part-time (PT), or per diem (PRN).

Inclusion/Exclusion Criteria for Nurses

Inclusion Criteria:

- Day shift registered nurses in the ED and CCU
- FT, PT, or PRN employment status
- Staff or charge nurse title

Exclusion Criteria:

- Float nurses
- Administration
- Nurses on orientation

Recruitment

An explanation of the DNP project was shared with participants using a non-mandatory staff huddle to explain the DNP project, expected outcomes, interventions, and current statistics. Consent was obtained for those who participated and met inclusion criteria. See Appendix B.

Two educational sessions were performed to ensure the most significant number of staff will be in attendance. This huddle was reviewed with the DNP preceptor, the IRB committee, the Quality Improvement Director, and the Director of Critical Care Services to ensure everyone had the same goal.

Consent

The project was initially submitted to the Institutional Review Board (IRB) at Jacksonville State University (JSU) and approved in November 2022. See Appendix C. Consent was obtained from staff nurses who will be participating. Full disclosure of the entirety of the project was discussed in multiple staff huddles. It was also noted that at any time staff could amend their consent and stop participation.

Design

This Quality Improvement (QI) project used convenience sampling of staff nurses in the ED and CCU settings and patients in those same settings. The project was started after IRB approval, and a staff huddle was provided to participating day-shift staff nurses in two separate sessions. The DNP student offered these sessions within the hospital campus's two units' break rooms. The PI conducted the sessions, where presented information included

- the timing of various culture collections,
- administering antibiotics after culture collection,
- current hospital and national statistics, and
- the goal of the DNP project.

A staff huddle and a flowsheet/checklist badge buddy reinforced this intervention when the nursing staff administered antibiotics and when providers ordered or reviewed patient charts. The DNP project and protocol implementation took place over a four-week timeframe.

Current practices regarding recent statistics will be evaluated and communicated with the QI director. Before the initial staff huddle, the PI reviewed the existing protocols and procedures with nursing staff in the culture collection. After the huddle, the same practices were reviewed to ensure staff compliance and education.

Chart Review

A pre-intervention chart review was conducted, as well as chart reviews throughout the four-week project time frame. The DNP student identified ED and CCU patient charts, antibiotic administration, and culture collection. Patients and charts were reviewed for diagnosis requiring antibiotics, various culture collection timing, and antibiotic administration time. A post-intervention review assessed improved changes in antibiotic administration after culture collection. This review took place over a four-week implementation period of the badge buddy implementation to review for real change in administering antibiotics after culture collection.

EPIC is the electronic medical record (EMR) that the project facility will utilize. The post-intervention chart review process started after the initial staff informative huddle and continued to take place for four weeks. Patient age, sex, and diagnosis will be the only identifiable data the DNP student noted from the charts. After the information was retrieved, the data was de-identified. Non-identifiable data was be the only data included in the analysis. The PI, DNP chair, and preceptor were the foremost researchers in retrieving and analyzing data.

Risks and Benefits

There is only minimal potential risk for nurses participating in this project, which concerned confidentiality. The Primary Investigator (PI), DNP chair, and preceptor did mitigate any risks regarding HIPAA and confidentiality. The DNP student assured nursing staff that participation, or lack thereof, wound not affect their job status. Benefits to nursing staff included

improving standards of nursing care and patient outcomes. This project used various ethical principles to act in the nursing staff's and patients' best interest.

This project did adhere to all ethical standards required to protect the nursing staff and patients involved in the study. Ultimately this project will be used for nursing staff knowledge and utilize already provided resources to assist with de-escalating broad-spectrum antibiotics on patients.

Compensation

The DNP project did not provide compensation for participants. Participants will be encouraged to participate; however, participation will not be required. Consent will be obtained from those willing to participate and disclosure will be made that there will be no compensation.

Timeline

The DNP student created a timeline throughout the project's implementation. This timeline is noted to take place over a twelve-week timespan. The actual review, implementation, and conclusion of the project took place over a 4–6-week timeframe. See Appendix D.

Budget and Resources

Use of a budget was not required for the project. No direct costs were associated with the project. All resources that were provided to participating staff were free of charge. There is also no cost to share this data to the public.

Evaluation Plan

The DNP student observed current practices in the ED and CCU settings, found where the faults were, collaborated with participating staff, and issued a badge buddy flowsheet/checklist. Data gathered at the project site regarding antibiotic administration and culture collection was be primary data, or data gathered firsthand, that is specific to the topic of

interest. The QI manager, DNP chair, preceptor, and CNO assisted with the examination and review of this data.

Statistical Consideration

Data collected in the DNP project was converted into percentage, as the original data was. Per the Prime Abstract Report the rate of incidence of collecting cultures after antibiotics were already administered was 78% during January-June of 2022. After implementation of the project, the rate was noted to be 10% between February-March 2023.

Data Maintenance and Security

Data collected at the project site was de-identified prior to leaving project site each visit. All data collected was not shared with those not participating in the study. Data was collected using the EMR system which required student specific log in obtained prior to project initiation. HIPAA was maintained throughout the entirety of the project. In addition, the DNP student completed behavioral and social responsibility conduct of research through CITI training. See Appendix E.

Results

The results noted after project completion showed a significant decrease of rate of occurrence by 68%. According to the Prime Abstractor's Data, obtained from the QI Manager, the current rate of administration of antibiotics prior to culture collection was at an astounding 78%. After staff huddles, which reviewed current statistics and correct policy/procedures, and badge buddies, the rate drastically decreased to only 10%. Fifty patients who received antibiotics and culture collections were reviewed, and of those, only five were noted to have had cultures drawn at the same time antibiotics were administered or before cultures were collected.

Discussion

Implications for Education

Pre and post intervention discussions with staff was performed on a weekly basis. Involvement of staff to keep them aware of weekly statistics and findings showed increased willingness to participate. Staff noted in feedback at conclusion of project that the badge buddies were helpful in decision making and will continue to be used. Findings were relayed to DNP chair and preceptor.

Implications for Quality and Safety

The implementation of the DNP project was displayed with a 68% decrease in incidence of culture collection after antibiotic administration was noted. Per the Alabama State Board of Nursing Practice Act, there are several standards of practice the professional individuals in a nursing role must adhere to. Section 610-X-6-.02 part (D) essentially states, along with several other responsibilities, that nurses must execute medical regimens according to approved standardized procedures (Alabama Administrative Code, 2022). In these standardized procedures in ensuring labs, including various cultures, are collected promptly.

Limitations

Only one limitation was noted which was lack of participation in entirety of staff. The project site facility is in a rural community which could indicate a limit or lack of resources. However, the DNP project did not require an overwhelming number of resources, therefore this was not considered as a limitation.

Dissemination

Potential data sources needed to implement this project were the electronic health records for patients, access to the quality control manager, and the DNP-prepared preceptor and chair for this project. Staff satisfaction and involvement was also obtained.

To implement this DNP project, the DNP student has collaborated with a DNP-prepared nurse practitioner, the CNO, and the quality control manager. These collaborators emphasized and reassured the need for this project. Strengths of this project are the validity of times and documentation of antibiotic administration. Weaknesses include the timing of cultures and the need to obtain them in the ER. Project tasks were discussed with all parties, including the DNP preceptor, the CNO, the hospital's clinical educator, and quality control. These tasks encompass various stages of the planning process, such as brainstorming and reviewing requirements, final approval and discussion of focused project details, discussion of strengths and weaknesses of data and the guidance when this occurs, professionalism, and providing input or veto recommendations. Access to electronic health records was granted and is readily available.

The DNP-prepared preceptor and chair did oversee the student's data and was collaborated with on the project findings. No new technology will be needed with this project. Technology that will be used is EMR, sputum specimens, urine specimens, as well as blood cultures. The EMR was needed to track times of culture collection and results and times of antibiotic administration. The timings of these were critical information in this project. Materials for collections of various cultures, including sputum, urine, and blood, were also be needed.

Sustainability

The template for the badge buddies were left with education coordinators of each department. Those who have the badge buddies, are encouraged to continue using them after the

conclusion of the project. For future projects, it would be beneficial to expand the implementation across the entire hospital.

Plans for Future Scholarship

Future scholarship opportunities include utilizing IT support to initiate a prompt versus a laminated badge buddy. Lengthening project timing could also be beneficial. IT support could be utilized to initiate a prompt for staff versus a laminated badge buddy. Plans could also include expanded the units to the entirety of the hospital as well as identify other stewardship programs.

Conclusion

The DNP project began with observation of repeated incidences of collecting cultures after antibiotics were being administered. The DNP student collaborated with the Quality Improvement Director and Chief Nursing Officer, the need for this project was voiced. Ideas and ways to address the clinical concern. Ideas were generated and were discussed with the preceptor and DNP chair. Resources for implementation (including staff huddles and badge buddies) were shared with participating staff and the project implementation began.

At the conclusion of this project, a 68% decrease in administration of antibiotics prior to culture collection was achieved. Staff verbalized the usefulness of the badge buddies and mentioned they would continue to use them after conclusion of the project.

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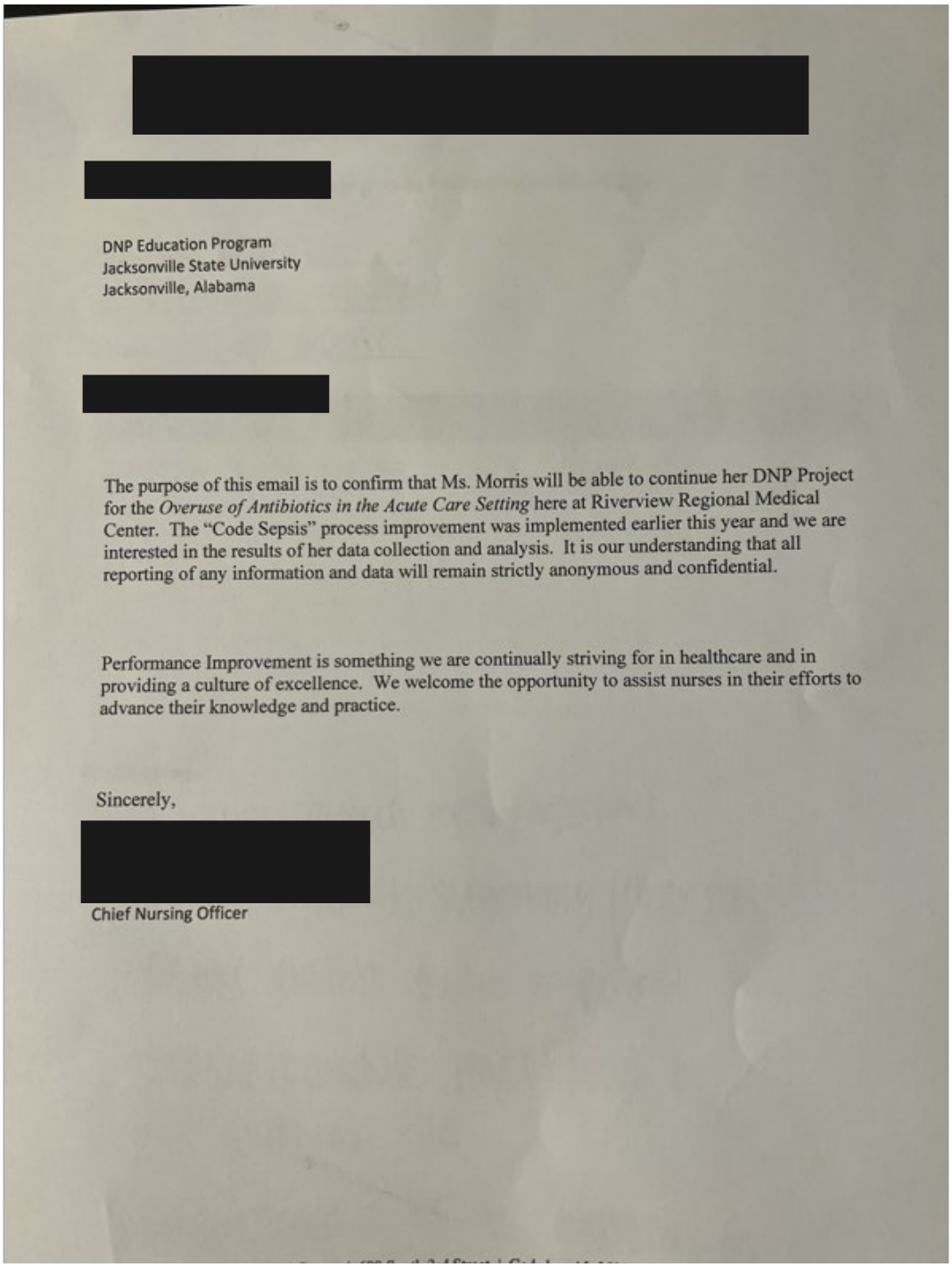
Appendix A
Letter of Support from Agency



[redacted]

[redacted]

DNP Education Program
Jacksonville State University
Jacksonville, Alabama

[redacted]

The purpose of this email is to confirm that Ms. Morris will be able to continue her DNP Project for the *Overuse of Antibiotics in the Acute Care Setting* here at Riverview Regional Medical Center. The "Code Sepsis" process improvement was implemented earlier this year and we are interested in the results of her data collection and analysis. It is our understanding that all reporting of any information and data will remain strictly anonymous and confidential.

Performance Improvement is something we are continually striving for in healthcare and in providing a culture of excellence. We welcome the opportunity to assist nurses in their efforts to advance their knowledge and practice.

Sincerely,

[redacted]
Chief Nursing Officer

Appendix B

Informed Consent

Subject Informed Consent Form

Principal Investigator: Adaline Morris, MSN, FNP-BC, DNP Student

Introduction

You are being invited to participate in a quality improvement research study titled *"Overuse of Antibiotics in the Acute Care Setting"* researched by Adaline Morris, Doctor of Nursing Practice (DNP) student at Jacksonville State University. This will take place in the emergency department (ED) at Riverview Regional Medical Center for an approximate four-to-six-week period. In this study, data will be obtained to include timing of various culture collection and timing of antibiotic administration. This project strives to provide full transparency related to implementing this project, informing staff of its purpose, and seek informed consent for voluntary participation. Please see attached badge buddy checklist.

Purpose

The purpose of this study is to de-escalate the use of broad-spectrum antibiotics by ensuring various cultures are being collected prior to antibiotic use. To do this, a "badge buddy" checklist will be given to participants as a quick reminder of collecting these cultures promptly.

Risks

There are no known risks in participation of this study. It is your decision to partake in this study. Understand that your participation, or lack thereof, will not affect your current position in this company.

Confidentiality

By participating please note, this data will not include any identifying data from the participating nurse or patient. The badge buddy will hang on the backside of participants badge, therefore will not be seen or obstruct participants name/title visible to other staff and patients.

Questions

If questions arise, or participants wish to end their participation, please reach out to the principal investigator, Adaline Morris, DNP student, immediately.

Amorris13@stu.jsu.edu or 256-689-6703

I UNDERSTAND THE PURPOSE AND IMPLICATIONS OF THIE DISCUSSED QUALITY IMPROVEMENT PROJECT/INTERVENTION. ALL QUESTIONS HAVE BEEN ANSWERED AND I AGREE TO PARTICIPATE IN THIS DNP PROJECT. I UNERSTAND THAT AT ANY TIME I CAN CEASE PARTICPATION WITHOUT REPROCUSSIONS. I HAVE VIEWED THE BADGE BUDDY BELOW AND UNDERSTAND ITS USE.

NAME:_____
SIGNATURE:_____
DATE:_____

I HAVE EXPLAINED THE INTRODUCTION, PURPOSE, RISKS/BEENFITS, ANSWERED ALL QUESTIONS AND ADDRESSED CONCERNS OF THIS DNP PROJECT TO PARTICIPANTS TO THE BEST OF MY ABILITY.

PRINICPAL INVESTIGATOR: ADALINE MORRIS
SIGNATURE:_____
DATE:_____

Appendix C

IRB approval Letter

JSU | INSTITUTIONAL REVIEW BOARD
JACKSONVILLE STATE UNIVERSITY

Institutional Review Board for the Protection of Human Subjects in Research
249 Angle Hall
700 Pelham Road North
Jacksonville, AL 36265-1602

November 9, 2022

Adaline Morris
Jacksonville State University
Jacksonville, AL 36265

Dear Adaline:

Your protocol for the project titled "Overuse of Antibiotics in the Acute Care Setting" protocol number 11092022-02 has been granted exemption by the JSU Institutional Review Board for the Protection of Human Subjects in Research (IRB).

If your research deviates from that listed in the protocol, please notify me immediately. One year from the date of this approval letter, please send me a progress report of your research project.

Best wishes for a successful research project.

Sincerely,

Jennifer Mead
Senior Human Protections Administrator, Institutional Review Board

Appendix D

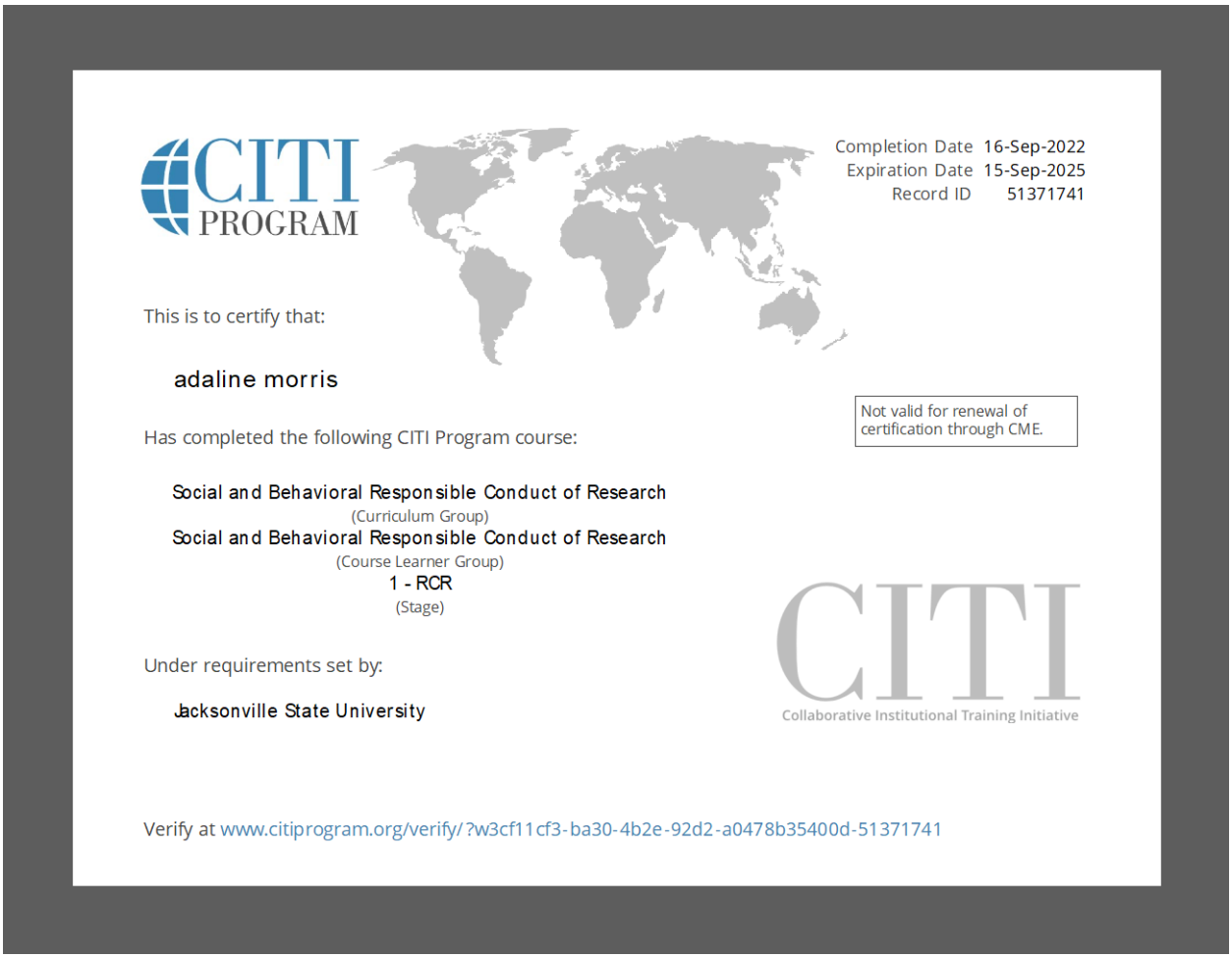
Timeline

Simplified Project Timeline

CLINICAL PHRASES	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12
PROPOSE PROJECT	COLLABORATE WITH FACULTY	MEET WITH PRECEPTOR										
DRAFT PICOT/ GATHERING INFORMATION		GATHER INFO, SUBMIT TO FACULTY	MAKE REVISIONS AS NEEDED	SUBMIT FINAL DRAFT PICOT								
FACULTY AND PRECEPTOR REVIEW AND PLANNING	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW	FACULTY AND PRECEPTOR REVIEW
FACULY AND PRECPTOR SUGGESTIONS, EDITING, AND STAKEHOLDER MEETINGS		FACULTY AND PRECEPTOR REVIEW	MAKE CHANGES MEET WITH PRECEPTOR	FACULTY AND PRECEPTOR REVIEW	MAKE CHANGES COLLAB AND MEET WITH PRECEPTOR	FACULTY AND PRECEPTOR REVIEW	MAKE CHANGES COLLAB AND MEET WITH PRECEPTOR	FACULTY AND PRECEPTOR REVIEW	MAKE CHANGES COLLAB AND MEET WITH PRECEPTOR	FINAL REVIEW	MAKE FINAL CHANGES AND SUBMIT	
DRAFT DISSEMINATION AND WRITINGS AND FINAL PICOT								COLLAB WITH PRECEPTOR AND FACULTY	MAKE CHANGES	COLLAB WITH PRECEPTOR AND FACULTY	MAKE FINAL CHANGES	FINAL SUBMISSION
PRECEPTOR AND FACULTY FINAL REVIEW										SUBMIT FOR REVIEW	MAKE CHANGES	FINAL SUBMISSION
FINAL DISSEMNITATION											FINAL TOUCHES	PRESENT

Appendix E

CITI Training



CITI PROGRAM

Completion Date 16-Sep-2022
Expiration Date 15-Sep-2025
Record ID 51371741

This is to certify that:

adaline morris

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Social and Behavioral Responsible Conduct of Research
(Curriculum Group)
Social and Behavioral Responsible Conduct of Research
(Course Learner Group)
1 - RCR
(Stage)

Under requirements set by:

Jacksonville State University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w3cf11cf3-ba30-4b2e-92d2-a0478b35400d-51371741