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Applying Telephone Triage and Treatment to Acute Low Back Pain

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Disclaimer

Due to the impact of the COVID19 Pandemic, 2020, graduates of the Daniel K. Inouye Graduate School of Nursing were deemed critical to the mission of caring for the health of the nation and had an accelerated graduation. All phases of the DNP Project were complete and met the standards and rigors of a quality DNP Project with an abbreviated dissemination timeframe.

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Abstract

Phase II Site: William Beaumont Army Medical Center, Fort Bliss, El Paso, Texas

Project Title: Applying Telephone Triage and Treatment to Acute Low Back Pain

Authors: Joshua Geiger & Margaret Martin

Background:

In September 2017, William Beaumont Army Medical Center was below the 90% target for compliance with the Healthcare Effectiveness Data and Information Set measure for conducting imaging studies on acute, non-traumatic, low back pain. Unnecessary imaging increases the risk to patients, prolongs suffering, and increases the cost to the organization. Evidence revealed that conducting telephone triage is safe, accurate, directed to appropriate services, and has high patient satisfaction.

Clinical Question:

In a military primary care clinic, does the implementation of pre-appointment triage, an automatic activity limiting profile, and prescription of non-steroidal anti-inflammatory medications for service members with acute, non-traumatic, low back pain improve patient management compared to pre-implementation?

Project Design:

From August 2019 until January 2020, patients were contacted by telephone before their scheduled appointment and an algorithm applied to their presenting illness. If the algorithm criteria were met, the patient was offered a CPG based treatment consisting of a temporary profile, medications, home exercises, and a referral to Physical Therapy. After thirty days of care, each patient completed a survey quantifying their management and perception of care.

Analysis of the Results:

For fifteen patients managed with Telephone Triage and Treatment, the average wait time was reduced by two weeks. According to WBAMC's most current HEDIS data, the compliance rate for inappropriate imaging went from 67.9% in May of 2018 to 84% in October 2019. Post survey analysis reflects current literature data, to support telephone triage and treatment is safe, reduces wait time and has high patient satisfaction.

Organizational Impact/Implications for Practice:

By implementing Telephone Triage and Treatment on a small scale, this project has proven its efficacy and can be easily adopted by any primary care clinic. Identifying and managing patients before their scheduled appointments reduces suffering and increases compliance with HEDIS measures.

Introduction

In September 2017, William Beaumont Army Medical Center (WBAMC) in El Paso, Texas, was below the 90% target for compliance with the Healthcare Effectiveness Data and Information Set (HEDIS) measure for acute, non-traumatic, low back pain (ANTLBP) imaging studies. Further, this medical treatment facility was in the bottom rankings of the Army Medical Department (One staff/RHC Huddle, personal communication, September 7, 2017). HEDIS recommends against obtaining imaging for individuals with ANTLBP who are free of indicators of severe pathology. The authors collaborated with the WBAMC Department of Primary Care leadership and other stakeholders to improve the HEDIS measure for ANTLBP imaging studies. The plan included implementing a system of telephone triage which directed patients to appropriate care. Additionally, if patients met non-specific low back pain criteria, they could waive a face to face appointment and receive a pre-determined treatment plan including duty limiting profile, education, medication, and a consult to physical therapy. By applying the clinical practice guideline (CPG) recommendation in a telephone consult appointment, the authors planned for the HEDIS measure for imaging low back pain patients to improve.

This subject was a priority for leaders and stakeholders at WBAMC. Our team was established and included two project authors, one phase II site director, one senior mentor, and one team mentor. The literature search and analysis produced twenty-one relevant scholarly articles which validated the plan to implement telephone triage in conjunction with the current clinical practice guideline treatment plan.

Significance and Background

The importance of improving the HEDIS measure is a reduction in unnecessary radiation exposure to patients and financial savings for the organization. The current evidence-based

clinical practice guideline for imaging for low back pain recommends against conducting imaging studies within the first month of injury (Delitto et al., 2012). Additionally, Chou, Qaseem, Owens, Shekelle, and Clinical Guidelines Committee of the American College of Physicians state that routine imaging has been found to cause adverse outcomes (2011). Unnecessary radiation exposure will be reduced, and financial savings achieved by delaying imaging studies for patients that present with ANTLBP.

Similar to civilian institutions, the military, like any organization, are interested in decreasing unnecessary expenses in healthcare (DHA, 2017). In 2006, approximately two-thirds of the estimated \$100 billion spent on low back pain related medical expenditures were associated with lost wages and productivity (Qaseem, Wilt, McLean, & Forciea, 2017). By decreasing the number of unnecessary imaging studies, there will be financial savings for WBAMC, in addition to improved HEDIS metrics.

The literature conclusively identifies telephone triage as an acceptable alternative to standard face-to-face appointments. Additionally, face-to-face appointments increase imaging rates for low back pain, and in turn, drive higher costs and radiation exposure (Jenkins MChir et al., 2015). Without intervention, numerous patients will continue to be unnecessarily imaged if the current trends continue. Adoption of the HEDIS by more than 90% of America's health plans has resulted in the ability to compare specific areas of care, and these comparisons drive quality improvement and evidence-based care across the healthcare spectrum ("HEDIS," n.d.). With improved health care and lower cost being two of the critical components of the Defense Health Agency's mission, this project will further build on both essential metrics (DHA, 2017). With the support and resources of the stakeholders at WBAMC, a solution is within reach and the changes

can directly improve for the patients, and allow more freedom to allocate finances to other aspects of the budget.

Clinical Question

In a military primary care clinic, does the implementation of pre-appointment triage, an automatic activity limiting profile, and prescription of non-steroidal anti-inflammatory medications for service members with acute, non-traumatic, low back pain according to the current Clinical Practice Guidelines reduce inappropriate imaging compared to pre-implementation?

Focus Areas

Ultimately the goal of this project is to reduce the number of active duty service members who are presenting to the clinic with acute, low back pain who also receive an imaging study to ten percent or less. The focus areas within our project are as follows:

FA1: Conduct Telephone Contacts (T-CON) for service member patients requesting appointments for acute, low back pain. See Appendix D for T-CON algorithm.

FA2: Apply an algorithm to determine if acute, low back service member patient can be managed with a T-CON or be seen by a provider.

FA3: Collect data on acute, low back service member patients that are managed by a T-CON, routine appointment, 24-hour appointment. See Appendix E for the data that will be collected. Data will be collected by reviewing patient appointment lists prior to each patient being contacted and during individual patient T-CONs.

FA4: Compare patients that were managed with a T-CON versus seeing a provider to determine the frequency of imaging studies.

FA5: Determine the overall effectiveness of managing service members with acute, low back pain by identifying: number of appointments remaining open for further access, days from injury to care, and patient perception of care.

Relevance

Military

The backbone of the military is a healthy service member who is ready to fight and deploy. Low back pain is one of the most common complaints in the military healthcare system and leads to missed work. Additionally, low back pain is the most significant precursor to lifelong low back pain complications (Rhon & Fritz, 2015). Should a service member suffer from low back pain, they will have difficulty with performing their job successfully (Rhon & Fritz, 2015). In the United States in 2006, approximately two-thirds of the estimated \$100 billion spent on low back pain related medical expenses were associated with lost wages and productivity (Qaseem, Wilt, McLean, & Forciea, 2017). The pharmacologic treatment of patients presenting with acute low back pain should be non-steroidal anti-inflammatory drugs (NSAIDs) as most patients will improve over time (Qaseem et al., 2017). By decreasing the number of unnecessary imaging studies, there will be financial savings for the organization, which could potentially be used elsewhere. Moreover, by implementing an algorithm to treat patients initially with an activity limiting profile and NSAIDs, the option for providers to order imaging studies that are not needed will be eliminated.

Nursing

Within the field of nursing, evidence-based projects provide a safer encounter for patients in addition to financial benefits for the organization (Melnik, Gallagher-Form, & Fineout-Overholt, 2014). This evidence-based project directly aligns with the American Association of

Nurse Practitioners (AANP) vision of excellence and to promote high-quality outcomes for patients. Patient presentation with ANTLBP is a common occurrence in the primary care setting. The goal of this project was to reduce the amount of unnecessary diagnostic imaging in the form of a radiograph, computed tomography (CT) scans, or magnetic resonance imaging (MRI). Advanced Practice Registered Nurses are in a position to directly achieve that goal by knowing when to conduct diagnostic imaging studies for patients who present with ANTLBP by referencing the CPG.

Project Short- and Long-Term Goals

The short-term goals of this project included reducing the number of imaging studies for service members with ANTLBP, and have a positive multifaceted impact on the patient and the organization. Additional short-term goals included improving the HEDIS metric, promoting patient care that is appropriate and evidence-based, decreasing patients' exposure to potentially harmful ionizing radiation, and a reduction in the amount of time from injury to care. The long-term goals of this project included cost savings to the organization by reducing unnecessary imaging studies and reduction of wear and tear associated with operating equipment.

Anticipated Global Impact

With a successful implementation of this project, its formula can be applied to other non-urgent, routine care complaints that can be managed conservatively, which would further improve access to care and reduce operating costs. Also, this model of care can be expanded to all other Medical Treatment Facilities (MTFs) within the Defense Healthcare Agency (DHA), further reducing organizational costs on a national level.

Organizing Framework: EBP Model

The clinical improvement goal of reducing unnecessary imaging is obtainable by embracing the principles described within the theoretical framework of the Clinical Scholar Model. This model allows for a multidisciplinary approach through collaboration, shared goal-setting, and evidence appraisal and implementation to create a higher standard of care for the patient (English, 2016). The Clinical Scholar Model is described as having five sequential components that require clinical improvement teams to address and complete each stage before moving forward with the EBP. The stages are: observe, analyze, synthesize, apply, and evaluate (English, 2016). Each of these stages will be further described in greater detail within the Procedural Steps section.

The Fort Bliss project identified low back pain imaging as the clinical area that required intervention. This needed improvement stemmed from the HEDIS benchmark being missed by almost 30% within the organization and was unacceptable to leadership. After a thorough literature search and analysis, telephone triage and advice services themes were identified from twenty-one scholarly articles. The themes that occurred most often in these articles were: higher satisfaction, limited cost savings, safe, accurate, and directs to appropriate services. Based on these themes the authors decided the best course of action was to implement telephone triage paired with an algorithm to provide care for patients with ANTLBP. Following the Clinical Scholar Model, the next component the authors focused on completing was to apply the intervention within the organization.

Using a model that reflects the beliefs that clinicians who are knowledgeable and fluent with the organization provide the best outcomes, allows this project to have the most significant impact (White, Terhaar, and Dudley-Brown, 2016). By questioning the traditional practices of

approaching low-back pain from within the clinic and, instead, taking the care to the patient, Advanced Practice Registered Nurses are using the Clinical Scholar Model to challenge current practices fundamentally. Following this model required small-scale testing, revision, larger-scale testing, and finally, publishing the organizational change as the final step (English, 2016).

Organizing Framework: Change Theory

The behavioral change theory that best fit our scholarly inquiry project (SIP) is the learning organization theory. The idea of a learning organization was developed and introduced by Peter Senge in his book *The Fifth Discipline: The Art and Practice of the Learning Organization*, written in 1990 and revised in 2006. Senge (2006) introduced five disciplines on how to become a learning organization, including systems thinking, personal mastery, mental models, building shared visions, and team learning. The main goal is to minimize individuals from breaking down problems and to increase the ability to see things as a whole (Senge, 2006). Each of these disciplines was applied at our phase II site of Fort Bliss, Texas, while working on this SIP.

Systems thinking involves the ability to recognize patterns and to see the whole picture while personal mastery embraces lifelong learning and focusing on becoming the best version of oneself (White, 2016). Mental models are oversimplifications used by individuals to understand the world or acts, and that being open to new ideas and setting aside one's position is required for change to occur (Senge, 2006). Shared visions are required for a successful learning organization because they bring an organization together that is focused on continued commitment (White, 2016). The final discipline of team learning is when an entire team comes together with goals in mind and agree to work towards that goal to achieve results (White, 2016).

Each of these disciplines were utilized while working on our SIP with the goal for change to successfully occur. First, the authors created a vision statement and revisited that statement at least monthly, which allowed focus on the discipline's systems thinking, mental models, shared visions, and team learning. Second, by holding meetings at least monthly, this allowed communication among all team members and utilized all five disciplines of the learning organization. Finally, all individuals involved were afforded the ability to provide feedback at all stages of the SIP. The authors planned to implement a small-scale testing group, but that plan changed to simply implement the full-scale project. Feedback was reviewed weekly during project implementation to address safety, inconsistencies, and delays in care. By completing the above goals and working towards becoming a learning organization, successful change occurred in the form of our SIP. This change was evaluated through collaboration with the WBAMC Quality Management Office which independently tracks HEDIS measures for low back pain.

Project Design

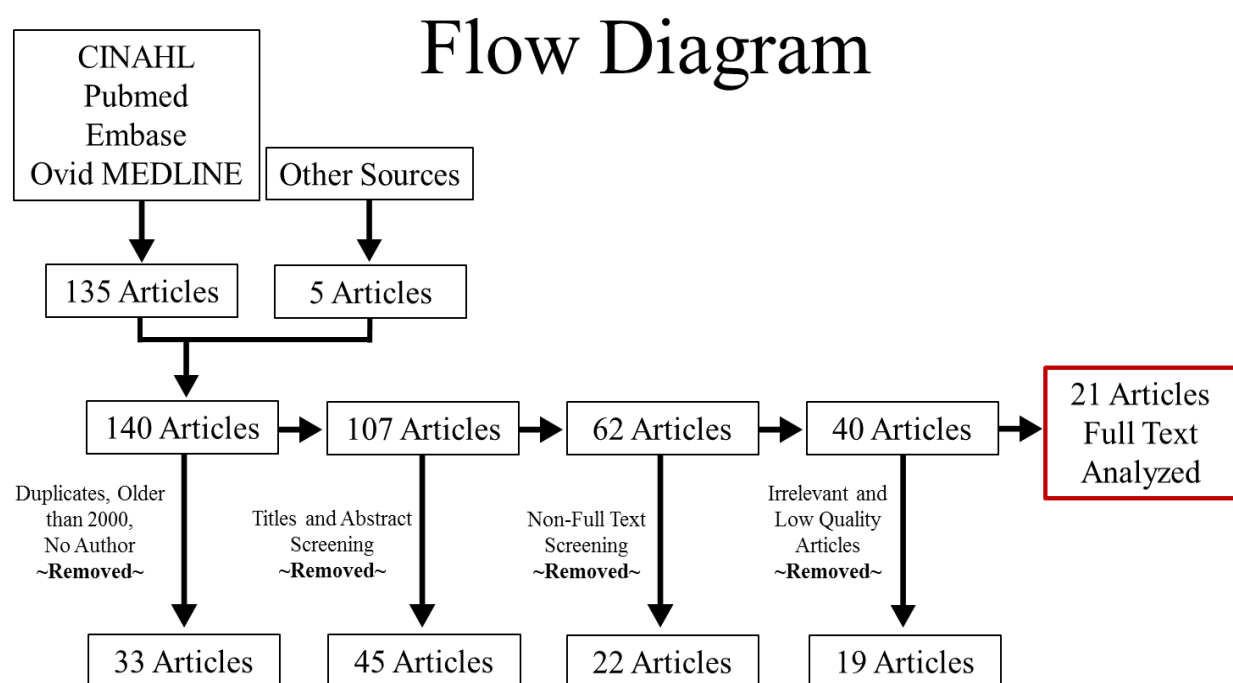
Evidence Evaluation

The initial literature search of the databases Embase, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Ovid MEDLINE were used to retrieve articles that contained the terms “telephone, triage, and back.” These keywords were identified as critical words that all of the published research articles must include to be relevant to answering the clinical question. Initially, 140 articles were retrieved and reviewed against the exclusionary criteria, finally bringing the total articles to twenty-one as shown in Figure 1. The exclusionary criteria included articles in which the research was not directly related to an initial triage by telephone, triage that failed to include primary care services, and publications that excluded patients from the study. Within these twenty-one articles, there were two systematic reviews of

randomized controlled trials, two randomized controlled trials, two controlled trials without randomization, three systematic reviews of qualitative studies, and twelve qualitative studies. From within these twenty-one articles, the authors thoroughly reviewed each article using a generic evidence appraisal tool, and identified the various themes that each article described either qualitatively or quantitatively as shown in Table 1.

Figure 1

Flow diagram describing publications located, screened and analyzed



An analysis of the remaining articles revealed a diverse list of themes that were identified, extracted, analyzed, and condensed into the top five highest occurring themes. Twelve of the articles determined that telephone triage directed patients to appropriate services. Seven of the articles identified telephone triage as accurate and having a high satisfaction rate. Six articles concluded that it is a safe alternative to usual care, and finally, four stated that it had a limited cost saving as shown below in Table 1. By applying these themes to the clinical question, it can be determined that using telephone triage to properly direct patients with acute low back pain to appropriate services is a safe alternative to the usual care rendered.

Table 1

Evidence table of full-text research articles analyzed with themes identified

STUDY DATA						THEMES/ RESULTS			
Name/ Date	Purpose	Study Design	Sample Size	Level of Evidence	Quality of Evidence				
Anderson 2015	Determine effect of using experienced General Practitioners to review advice given by call handlers on a national telephone medical advice line	CT w/o R	1474	3	MED	Triage is Cost Saving	Experienced Triage Handlers are better	Emergency Hotline over triages	GP's on triage increase cost
Blank 2012	Synthesis of evidence of the appropriateness of and compliance with telephone triage decisions	SR QS	54	5	MED	Triage decisions mostly appropriate	Satisfied Triaged Patients had high Compliance		
Burn 2004	Assess the effects telephone consultation has on safety, service usage, and patient satisfaction by different health care professionals	SR RCT	9	1	HIGH	Telephone Triage High Satisfaction	No Primary cost reduction	All Studies used Algorithms	Triage Nurses Reduce GP workload
Campbell 2015	Comparison with usual care, to assess the impact of GP-led telephone triage and nurse-led computer supported telephone triage on primary care workload and cost, patient experience of care, and patient safety and health status	RCT	16211	2	MED	TTAS redistributed workload	TTAS increased workload in the 28 day fu	Cost comparison is evenly split TTAS and usual care	No overall cost savings using TTAS
Canlis 2010	Evaluate the use of telephone triage system in an academic primary care clinic and its impact on communication, patient management, and satisfaction	QS/DS	366	6	HIGH	Telephone Extension of Primary Care	Reduction for face-2-face	High patient satisfaction	Telephone triage reduced ED visits
Carrasquero 2011	Review TTAS evaluation studies, compile methodologies and metrics used and compare results	SR QS	55	5	MED	Expedited Access for Serious Symptoms	Few Adverse Events	TTAS High Patient Satisfaction	No overall Cost Reduction
Dahlgren 2017	Describe contact made by the elderly to Sweden's nationwide medical helpline	QS/DS	7477	6	MED	High Elderly Utilization of TTAS	High Medication Questions to TTAS	Low Compliance with Advice	
Downes 2017	Systematic review to collate evidence on the use of telephone consultation as an alternative to face-to-face general practice visits.	SR RCT	3	1	HIGH	TTAS appropriate alternative to Gf	High level of satisfaction	View telephone communication as appropriate form	
Eastwood 2016	Describe the Ambulance Victoria secondary telephone triage for low priority patients calling the emergency dispatch line	QS/DS	107148	6	MED	Frequent repeat usage of Emergency Referral Service	High call rate % for back pain	32% of callers given self-care advice	Majority of cases diverted from Emergency Services
Eppes 2012	Determine the safety and efficacy of telephone based triage system for influenza-like illness during 2009 pandemic	QS/DS	230	6	MED	41% evaluated and treated over telephone	Nurses and Providers performed the triage	Reduced in-person encounters	Positive Health outcomes
Hansen 2011	Investigate the quality of decision made by telephone based triage nurses in Norway	QS/DS	83	6	MED	78% correct responses	Nurse triage competence is safe	Quality of decision making is high	Overtriage most common mistake
Hildebrandt 2006	Assess and categorize harm occurring to patients who called their physicians office's after-hours but did not have their call forwarded to the physician because they stated that their call was not an emergency	QS/DS	119	6	MED	10% of calls misdirected	Communication problems represented largest cause of failure	Patients are unable to determine what is an emergency	
Holt 2016	Determine whether telephone triage reduces clinician-patient contact time on the day of the request compared with usual care	RCT	16711	2	MED	Provider contact time unaffected by telephone triage	Nurse led triage with decision support software reduces in GP contact time.		
Huibers 2012	Explore the impact of quality of consultation and estimated urgency on the appropriateness of decisions during telephone triage	QS/DS	6739	6	MED	Most telephone contacts non-urgent	Majority of triage decisions >90% appropriate	Few questions are needed for highly urgent issues	Nurses with uncertainty make safe decision and overtriage
Huibers 2016	Describe telephone contacts triaged face-to-face contacts, GP-assessed relevance, and factors associated with triage to face-to-face contact	QS/DS	7810	6	MED	59% of calls ended with no more than telephone conversation	Safety of triage is unknown	Older patients more often triaged to a f2f contact	Problems persisting greater than 24 hours more likely to be minor
Hutchinson 2017	Audit the diagnostic accuracy of radiology investigations performed for spinal pain by telephone based Advanced Level Physiotherapy triage service	QS/DS	276	6	MED	91% telephone triage diagnoses correct	High percentage of pts safely kept in conservative management		
Issail 2013	Review the evidence on primary care service interventions to reduce inappropriate accident and emergency services	SR QS	34	5	MED	Reduction in referral rates for musculoskeletal conditions	Telephone triage has little effect on emergency dept attendance	Telephone triage has moderate patient satisfaction	TTAS found to have AE comparable with or better than standard care
Kelly 2010	Identify predictors of user satisfaction and enablement across unscheduled care or GP out-of-hours service providers in Wales	QS/DS	855	6	MED	Longer call waiting associated with decreased satisfaction	TTAS has higher satisfaction compared to treatment center consults	Longer length of call consultation associated with higher satisfaction	TTAS associated with higher enablement compared to treatment center presentations
Knight 2015	Describe rural informal telephone triage practices in Australia	QS/DS	23	6	MED	Meeting a community need	Telephone as an outreach of community	TTAS balances finite resources	
Taylor 2002	Investigate patient satisfaction with physiotherapy telephone advice in addition to standard management for back pain	RCT	223	2	MED	Telephone advice aided resolution of symptoms	TTAS had a higher satisfaction score compared to control	The experimental groups perception of the TTAS advice aided symptoms	In some cases telephone advice is the only care needed
Thapar 2014	Determine if telephone triage based assessment of patients requiring endoscopy is effective and safe	CT w/o R	438	3	MED	TTAS reduced time to diagnose	TTAS was safe		

Clinical Approach

Based on this evidence appraisal, implementing telephone triage to care for patients requesting an appointment with their primary care provider will properly identify patients requiring a face to face appointment or those patients who can be managed with a T-CON. Both authors contacted patients by telephone whose chief complaint was low back pain prior to their appointment, and applied an algorithm to the history and presenting symptoms. Patients either maintained their originally scheduled appointment, or were offered an alternative treatment consisting of a physical profile, non-steroid anti-inflammatory medications, emailed education about physical therapy exercises, and a consult to physical therapy was placed. This alternative treatment plan is essentially the same as the clinical practice guideline for ANTLBP; however, safely reduces the time a patient will wait for treatment and improves access to care for other appointments. The exact plan of execution will be discussed further in the procedural steps section.

Setting

This project took place in the Soldier Care Clinic at Mendoza Family Care Center and East Bliss Clinic located at Fort Bliss in El Paso, Texas. These clinics serve active-duty personnel aged eighteen and above. Other clinics at Fort Bliss specifically serve retired military personnel and all eligible dependents, but our desired population only included active-duty personnel aged eighteen and above.

Procedural Steps

The phase II site director at Fort Bliss, Texas, was in continuous communication with the authors and briefed on this project periodically since its conception. Implementation of telephone triage was initiated in August 2019 and occurred for approximately six months until January

2020. Throughout this process, our team followed the Clinical Scholar Model with the goal of becoming a learning organization with an improved HEDIS measure. During implementation, the authors met weekly to conduct telephone triage and discuss any concerns. Following each meeting, an after-action review was completed to track progress. Periodically, the authors met with the phase II site director or conducted a TCON with the senior mentor.

The five stages of the Clinical Scholar Model include observe, analyze, synthesize, apply, and evaluate (English, 2016). All five stages have been completed following the project topic determination and initial literature search. The apply stage was initiated on 29 August 2019, and daily patient appointments were scrutinized for low back pain concerns. Patients were contacted via telephone by the two authors for inclusion or exclusion in the project. The telephone contacts were managed utilizing a CPG based algorithm (see Appendix D). An order set consisting of a Non-Steroidal Anti-Inflammatory Drug (NSAID) for two weeks, activity limiting profile for one month, and a referral to physical therapy was ordered by the authors and signed off by the phase II site director. Additionally, the authors emailed the patient's a handout containing low back pain strengthening exercises that were approved by the WBAMC physical therapy department. The activity limiting profile was available to patients electronically and accessible to the patient's commander.

Implementation of the project occurred at the Soldier Care and East Bliss Clinics within the WBAMC Healthcare System. The authors anticipated hurdles, including being short-staffed, training individuals to perform telephone triage and chart appropriately, and getting staff buy-in for the new process. The project began on 29 August 2019 and concluded on 9 January 2020 for a total of twenty weeks. From January through February 2020, data was compiled and analyzed for improvement and sustainability. For the specific data collected on each patient, see Appendix

E. These internal data were compared with the control data obtained from adjacent medical homes through the Quality Management Office. The overall effectiveness of this project as evidenced by the HEDIS measure compared pre and post-implementation, will be presented below. The conclusion of the project will occur with the distribution of the author's findings through this written report, along with possible future presentations or journal articles.

HIPAA Concerns

This project was determined to not be research based on the definition by the U.S. Department of Health and Human Services Office for Human Research Protections as it is not designed to develop or contribute to generalizable knowledge ("Human Subject," 2016). In order to comply with the Health Insurance Portability and Accountability Act (HIPAA) of 1996, the authors submitted this evidence-based quality improvement proposal for review to the William Beaumont office. The authors collected Department of Defense identification (DOD ID) numbers on each patient, and each day during the implementation period, patient appointment lists for the following day for both clinics were reviewed to determine which patients had a chief concern of low back pain. All patient information was viewed by the authors, but not recorded. From an ethical standpoint, this project addressed delays in face-to-face appointments and exposure to unnecessary imaging and provided equivalent, yet expedited care for the patient (Campbell et al, 2015).

To comply with DoDD 5400.11 (2014), DoD Privacy Program, this project's authors, as part of their regular duties in patient care, collected DOD ID numbers, age greater or less than fifty years old, and chief complaint as the patient health information (PHI). In order to protect patient privacy, the following safeguards were implemented: using a combination of separate data spreadsheets that were password protected and isolated to one government computer.

Additionally, all individuals with access to collected data have remained compliant with appropriate training and education to include Health Information Privacy and Portability Act training and safeguarding Personal Identifying Information.

Project Results

Throughout the five months of patient enrollment into the project, eighty-four potential candidates were contacted by telephone and interviewed. Of those contacted, fifteen patients, or eighteen percent, met the criteria for enrollment and management using TTAT. Of the eighty-four potential candidates, sixty-nine patients were not eligible for enrollment due to the duration of their back pain lasting greater than thirty days, trauma as the mechanism of injury and one individual with post-partum low back pain.

The demographics of the patients enrolled into the project include age ranges from twenty to thirty-five and an average age of twenty-six. There were fourteen Enlisted Soldiers (93 %) and one Officer (7%), a 1st Lieutenant. The enlisted grades ranged from E1 to E6. Only three (20%) Non-Commissioned Officers were enrolled, and the remainder (80%) were junior Enlisted Soldiers. There were three females (20%) and twelve males (80%) managed with TTAT.

Access to care for enrolled patients averaged being managed on average eleven days sooner than their face-to-face appointment. The smallest reduction was one day sooner and the greatest reduction was twenty-eight days. 46% of patients received care ten days sooner than their original appointment. The mode for improved access to care was five days.

After each patient was enrolled for thirty-days, they were contacted to complete a follow-up survey (See Appendix F). The survey consisted of four questions and each question ranged on a ten-point Likert Scale, with “one” being completely dissatisfied and “ten” being completely satisfied. For question number one, “How satisfied were you with your pain

reduction?” The average answer was 5.9, and the most frequent answer was eight. 53% of patients gave the answer a six or higher for their satisfaction of pain reduction.

For question two we asked, “How satisfied were you with the length of your profile to allow for recovery?” This activity modification prevented our patients from participating in exercises that would exacerbate their low back pain and protected them from taking a record Army Physical Fitness Test. The average answer for this question was 7.6. Answers ranged between five and ten, with 87% giving a six or higher.

Question three pertained to the Home Exercise Program that was emailed to each patient. We asked, “How satisfied were you with the low back pain physical therapy information?” Four patients stated that they did not receive the email and were excluded from the survey results for this question. The average answer provided by the patients was an 8.3. The answers ranged from five to ten with 91% of patients giving the Home Exercise Program information a seven or above.

The final question pertained to our patient’s satisfaction with the telehealth experience overall. The question was, “How satisfied were you with the telephone triage and management procedure?” The average answer given was 8.5. They ranged from a three to ten. 53% of the patients enrolled in TTAT gave their satisfaction rating a 10 and 87% gave a score of 6 or higher.

The August 2019 HEDIS data presented the clinic was at 82.22% compliance for LBP diagnostic imaging. The most current data available at the time of this report was from November 2019, with the compliance raising up to 84.03%. This was an increase of 1.81% over three months. Unfortunately, at the time of this report there are two more months of HEDIS data obtained during the implementation phase of this project that has yet to be calculated and published for review and analysis.

Analysis of the Results

The results of this evidence-based project where the outcomes and perceptions of care were compared for patients triaged and treated with telehealth were virtually the same. These results support the literature findings that TTAT is safe, and does not cause further harm to patients. The aim of this project was to improve the process in which they are managed. For the patients managed using telehealth their care was improved in several ways over traditional face-to-face appointments, including faster care and the ability to be involved from the beginning.

For this project, we compared our sample population to the demographics from the Active-Duty Army in 2019 (Department of the Army, 2019). Although it is a small sample size with fifteen patients enrolled, the demographics are similar when compared to the ages, gender, and ranks for the total active force. Where 83% of the Enlisted Army are between the ages of twenty and forty, the entirety of our sample population was between those ages. Also, for our sample 20% of our patients were female compared to the total Army's 15%. With demographics so close in comparison, we feel that our results are generalizable for application within the total Army.

Our patients received expedited care to physical therapy, received a pain reducing medication, at home stretching rehabilitation exercises, and an activity modifying profile that restricts them from fitness tests and mandatory physical activity. By reducing these patients access to care time on average by eleven days, we have been able to improve their overall management. Additionally, a second order effect of performing this telehealth appointment is that the original face-to-face appointment is opened up for another appointment, improving access to care for other patients.

Upon review of how our patients perceived their care, we identified that their management based on the current Clinical Practice Guideline did not improve their pain significantly over the thirty days with an average score of 5.9 out of 10. This low scoring benchmark was not intended to be a part of the project that was to be improved, rather to establish if there was a significant difference between telehealth and face-to-face appointments, which there was not.

Questions two and three were intended to quantify the perception of the Army specific areas of our patient's management to include the activity modification length and exercises in lieu of mandatory physical training to rehabilitate their injured low back. Both of these questions received moderately high satisfaction with average scores of 7.6 and 8.3 respectively. In regards to the length of the profile the authors feel that it is of adequate length to initiate rehabilitation and adjust only as necessary based on recommendations from physical therapy and patient's condition after thirty days. The home exercise program appears to be received well and should remain as part of the management process. However, these exercises should become more standardized across the DHA, and not MTF specific.

Question four is the overall perception our patients have toward being managed using TTAT. This question is derived directly from the clinical question and guides this project's recommendation. With an average of 8.5 out of ten and more than half of our patients providing a perfect score, Soldiers with acute, non-traumatic low back pain are satisfied being managed with telehealth. When we review all of the components of this project together, we observe no reduction in pain overall, but our patient's pain and physical activity are managed sooner and with high perceived satisfaction.

With an increase in compliance with LBP HEDIS requirements of 1.81%, this project has shown to be equal or superior to the current status quo. Although this difference is negligible and cannot be solely attributed to the implementation of this project within the Soldier Care Clinic, it has been shown to not negatively impact HEDIS measurements, Soldier care, or have adverse effects. Additionally, due to only having three of the five months of HEDIS data during this project's implementation phase, we cannot fully interpret the effect of this project on acute low back pain imaging HEDIS compliance.

Organizational Impact

The organizational impact for this project can be broken down into three separate categories or levels. These include the personal, local, and macro levels. The personal level contains providers and patients, and this level obtained improved patient outcomes and high patient satisfaction. The local level contains the military treatment facility, where access to care was improved. Also, the HEDIS measure maintained or improved compliance, and operating costs were decreased. The macro-level contains the Defense Health Agency, and at that level, medical readiness was improved through the decrease in wait time for patients to be treated leading to a shorter time that service members are unable to perform their jobs successfully. Additionally, treatment variation across medical services was reduced by using the same algorithm and treatment options for patients with the primary concern of ANTLBP.

Future Directions for Research and Practice

In the future, telephone triage and treatment can be implemented by any primary care clinic, especially soldier care clinics. Other conditions can be identified for use with telephone triage and treatment and implemented through evidence-based projects, and using this same project design over a longer time frame to obtain a larger sample size. Telehealth can be

promoted with the goal for patients to be treated faster and to be more in control of their health care. The Military Health System can increase utilization of virtual appointments in primary care, and by increasing the utilization of telehealth across the military treatment facilities, it can potentially enhance capabilities and specialized management throughout DHA.

Conclusion

In conclusion, the results of this project aligned with the evidence in the literature and has proven efficacy in treating patients that are scheduled to be seen for ANTLBP. By identifying patients and managing them through telephone triage instead of a face-to-face encounter, care can be provided faster and resulted in high patient satisfaction. This project revealed that telephone triage and treatment reduce suffering and increases compliance with HEDIS measures.

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Project Timeline

[illegible][illegible]

Appendix A



Completion Date 28-Aug-2017
Expiration Date 27-Aug-2020
Record ID [REDACTED]

This is to certify that:

Joshua Geiger

Has completed the following CITI Program course:

OUSD P&R Human Research (Curriculum Group)
Biomedical Investigators and Research Study Team (Course Learner Group)
1 - Biomedical Investigators (Stage)

Under requirements set by:

Office of the Under Secretary of Defense (Personnel and Readiness)

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w73f5763b-89bf-4e3a-8611-3a41bafa4f59-24332069



Completion Date 28-Aug-2017
Expiration Date 27-Aug-2020
Record ID [REDACTED]

This is to certify that:

Margaret Martin

Has completed the following CITI Program course:

OUSD P&R Human Research (Curriculum Group)
Biomedical Investigators and Research Study Team (Course Learner Group)
1 - Biomedical Investigators (Stage)

Under requirements set by:

Office of the Under Secretary of Defense (Personnel and Readiness)

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w11c21201-fc9b-4b3a-8bbf-42123d8201b2-24339248

Appendix B

USUHS FORM 3202N
DANIEL K. INOUE GRADUATE SCHOOL OF NURSING
EVIDENCE-BASED PRACTICE/PERFORMANCE IMPROVEMENT PROPOSAL

VPR Date Stamp

Project Number: _____ (VPR will assign)

Project Title: Applying Telephone Triage and Treatment To Acute Low Back Pain

SECTION A: STUDENT POC INFORMATION	
1. Name (Last, First, MI): Geiger, Joshua, B	Student E-mail: joshua.geiger@usuhs.edu
2. Home Address: _____	
SECTION B: COMMITTEE CHAIR / SENIOR MENTOR INFORMATION	
3. Name (Last, First, MI): Taylor, Laura	
4. Telephone: 301.285.1124	Fax: _____ E-mail: laura.taylor@usuhs.edu
5. USUHS Building/ Room No.: Bld E, Rm 1012	
SECTION C: PROJECT INFORMATION	
6. Attach the Abstract for the proposal, including the following sections: Site Location of the Project, Title, Authors, Background or Problem/Issue, Clinical Question/Purpose, Project Design, Anticipated Organizational Impact/Implications for Practice and also include the Proposed Timeline. Single space the abstract and use Times New Roman font, size 12.	
7. Is this proposal related to an active research project of the Chair/Senior Mentor identified in Section B? ☐ Yes ☒ No If yes, complete below; if no, proceed to Part 8. Project Number: _____ Project Title: _____	
Project Start Date: 5/6/2019 Project End Date: 5/16/2020	
8. Anticipated period of performance: Project Start Date: 5/6/2019 Project End Date: 5/16/2020	
9. Performance Site(s): Ft. Bliss, El Paso, Texas	
10. Does this project involve any classified information? (Contact the USUHS Security Office for guidance) ☐ Yes ☒ No	
11. Do you have a funding source for this project? ☐ Yes ☒ No ☐ NA If yes, specify the funding agency and the amount provided: _____	
SECTION D: SIGNATURES	
The following signatures attest to the validity of the above information:	
GEIGER.JOSHUA.BRYAN. _____ Student (Project Point of Contact for) JOHNSON.HEATHER.L. _____ Chair/Program Director SMITH.NIKKI.RACQUEL. _____ DNP Project Director or PhD Director WASSERMAN.JOAN.E. _____ Associate Dean for Research, GSN (Signature and Date)	TAYLOR.LAURA.A. _____ Chair/Senior Mentor (Signature and Date) _____ Chair/Program Director (Signature and Date) SEIBERT.DIANE.C. _____ Associate Dean for Academic Affairs, GSN (Signature and Date) ROMANO.CAROL.A. _____ Dean, DKI Graduate School of Nursing (Signature and Date)
In light of the above signatures, the project is approved.	
_____ USUHS Vice President for Research	_____ Date

Appendix C



DEPARTMENT OF THE ARMY
WILLIAM BEAUMONT ARMY MEDICAL CENTER
5005 N PIEDRAS STREET
EL PASO, TX 79920-5001

MCHM-DCI

20 June 2019

MEMORANDUM FOR MAJ Margaret Martin, ANC, Doctorate of Nursing Student,
Student Detachment, William Beaumont Army Medical Center (WBAMC)

SUBJECT: Not Research Status Determination

STUDY TITLE: Telephone Triage and Treatment for Acute, Non-traumatic, Low-back
Pain in Active Duty Service Members

REFERENCE: #19-39

REVIEW TYPE: Administrative

ACTION: NOT RESEARCH STATUS DETERMINATION

DETERMINATION DATE: 19 June 2019

1. This letter is in response to your request for a "not research" determination for the above-referenced project.
2. A William Beaumont Army Medical Center (WBAMC) Determination Official (DO) has reviewed your proposed project and has determined that your project does not meet the definition of research as defined under 32 CFR 219.102.
3. Research is defined under 32 CFR 219.102(l) as follows:

"Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge."
4. Based on the information you provided, the proposed project was determined to be "not research" for the following reasons:
 - a. The purpose of the proposed scholarly inquiry project (SIP) is to implement a telephone triage program to help care for patients with low back pain consistent with established practice. The intent of the project is not to test a hypothesis or establish clinical practice standards where none are established (research), but rather to improve performance as judged by accepted standards (quality improvement).

MCHM-DCI

SUBJECT: Not Research Status Determination

b. The project is not designed to contribute to create or to contribute to generalizable knowledge, but rather to implement evidence-based practices that are already established in the literature.

c. The intent of the project is immediate and continuous improvement at WBAMC. The design is specific to the unit under consideration at WBAMC and would not lend itself to a statistical generalization to the broader population (e.g., no inferential statistics will be used).

5. Because the project has been determined to be "not research," it is not subject to further review from the Institutional Review Board (IRB). This determination should not be construed as approval to initiate the project. Other institutional approvals may be required and should be coordinated through your department. In addition, your project may become research subject to IRB review if it becomes and/or includes a systematic investigation to develop or contribute to generalizable knowledge.

6. Please be reminded that publication clearance is required prior to the release of any information outside of the institution. Please refer to the Department of Clinical Investigation (DCI) for specific requirements. Please note that additional publication clearance requirements apply when presenting data from quality improvement initiatives. Please ensure that you plan sufficient time to obtain the required clearances.

7. The POC for this action is the Department of Clinical Investigation, William Beaumont Army Medical Center at (915) 742-6075.

6/20/2019

 Larissa A. Schmursal

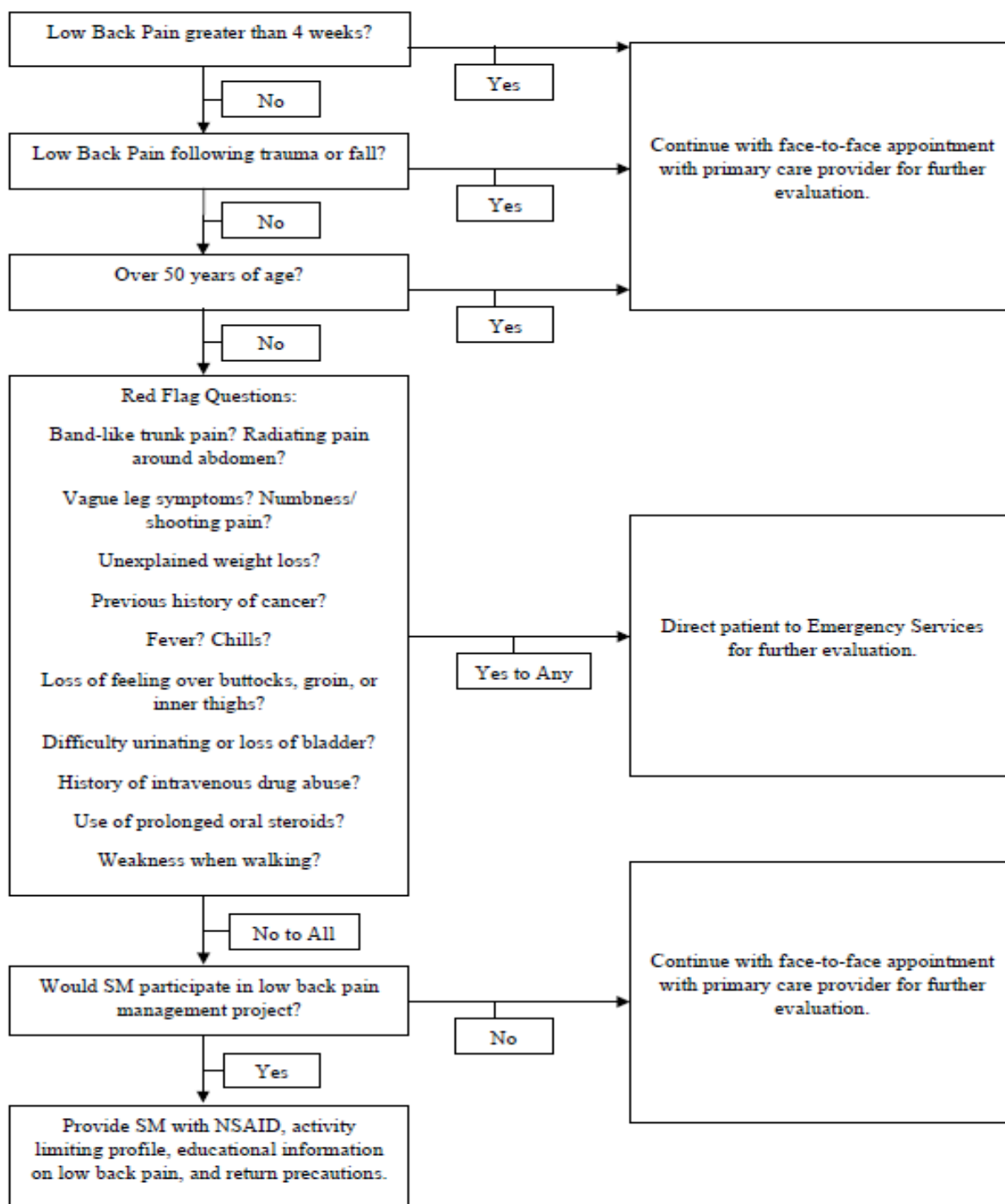
LARISSA A. SCHMERSAL, PhD

DETERMINATION OFFICIAL

Signed by: SCHMERSAL.LARISSA.A.1458668880

Appendix D

Low Back Pain Algorithm



Appendix E

Data Collection

- Department of Defense Identification Number
- Number of patients with Low Back Pain
- Number of patients not willing to enroll in the project
- Number of patients enrolled in the project
- Number of patients enrolled in the project that had improved symptoms within four weeks
- Patient satisfaction with pain medications (questionnaire)
- Patient satisfaction with length of profile (questionnaire)
- Patient satisfaction with physical therapy education provided (questionnaire)
- Patient satisfaction with telephone triage and management procedure (questionnaire)

Sample Spreadsheet

DOD ID	LBP	Not Enrolled	Enrolled	Symptom Improvement	Patient Satisfaction with Meds	Patient Satisfaction with Profile	Patient Satisfaction with PT Education	Patient Satisfaction with Triage
000001	x		x	x				
000002	x		x					
000003	x							
000004	x		x	x				
000005	x							
000006	x		x	x				
000007	x	x						
000008	x		x					
000009	x		x	x				
TOTAL	9	1/9	6/9	4/6				

Appendix F**DoD ID** _____**DATE** _____**Acute, Non-Traumatic Low Back Pain Telephone Triage Satisfaction Survey**

All questions are based on a scale of 1-10 with 1 being completely unsatisfied and 10 being most satisfied?

1. How satisfied were you with your pain reduction?

1—2—3—4—5—6—7—8—9—10

2. How satisfied were you with the length of time the profile allowed for recovery?

1—2—3—4—5—6—7—8—9—10

3. How satisfied were with the low back pain physical therapy education?

1—2—3—4—5—6—7—8—9—10

4. How satisfied were you with the telephone triage and management procedure?

1—2—3—4—5—6—7—8—9—10

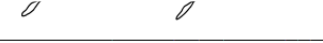
Appendix G



Appendix G: Daniel K. Inouye Graduate School of Nursing
DNP Project Completion Verification Form

DOCTOR OF NURSING PRACTICE PROJECT Completion Verification Form

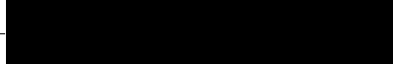
The DNP Project titled: Applying Telephone Triage and Treatment to Acute Low Back Pain was completed at William Beaumont Army Medical Center, Ft. Bliss, El Paso, Texas by the following student(s):

<i>(type student name)</i>	<i>(signature)</i>	<i>(date)</i>
<u>MAJ Margaret Martin</u>		<u>26 MAR 2020</u>
<u>CPT Joshua Geiger</u>		<u>26 MAR 2020</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The DNP Practice Project Team verifies that the following components of the DNP project, accomplished by the above students, is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation:

- Presentation of DNP project to the leadership/stakeholders at the Phase II Site,
- Abstract/Impact Statement (*Appendix F*), and
- DNP Project written report.

Verified by:

<i>(type name)</i>	<i>(signature)</i>	<i>(date)</i>	
<u>Dr. Laura Taylor</u>		<u>3/26/2020</u>	Senior Mentor
<u>Dr. Jill Schramm</u>		_____	Team Mentor
<u>LTC Nikki Smith</u>		_____	Team Mentor & Phase II Site Director