2023

Improving the Care of Neonates with Hyperbilirubinemia

Kellie Busse Kainer
Walden University

Walden University

College of Nursing

This is to certify that the doctoral study by

Kellie Kainer

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Trinity Ingram-Jones, Committee Chairperson, Nursing Faculty
Dr. Robert McWhirt, Committee Member, Nursing Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2023

Abstract

Improving the Care of Neonates with Hyperbilirubinemia

by

Kellie Kainer

MSN, Walden University, 2014

BSN, The University of Texas Medical Branch, 2002

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

August 2023

Abstract

Providers at a community-based pediatric hospital in the southern region of the United States have traditionally transferred otherwise healthy neonates with hyperbilirubinemia requiring inpatient treatment to a tertiary care facility. The question addressed was whether the implementation of an evidence-based, organizational protocol increases the quality and decreases the cost of caring for neonates with hyperbilirubinemia in the community-based, pediatric acute care hospital. The main goal of the organization's quality improvement (QI) project was to facilitate the provision of high-quality, cost-effective care to neonates with hyperbilirubinemia using an evidence-based approach as evidenced by a reduction in the number of neonates with hyperbilirubinemia transferred to the tertiary care facility, decreased cost to the organization, and increased level IV Neonatal Intensive Care Unit (NICU) bed availability at the tertiary care facility. The evaluation of the existing QI initiative was based on 12 months of pre-implementation data compared to 60 days post-project implementation. The data points collected included the number of neonates with hyperbilirubinemia transferred from the community-based facility to the tertiary care facility, the cost of the transport, and the number of NICU beds occupied by these neonates. The short evaluation period and staff non-compliance to the protocol were the main barriers to project goal attainment. Staff re-education to ensure adherence to the protocol and a longer evaluation period to provide sufficient data for analysis were recommended to facility leadership. The use of evidence-based principles and practices to inform processes, guide clinical practice, and solve clinical problems is anticipated to promote positive social change in the local and extended community.

Improving the Care of Neonates with Hyperbilirubinemia

by

Kellie Kainer

MSN, Walden University, 2014

BSN, The University of Texas Medical Branch, 2002

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

August 2023

Dedication

I dedicate my DNP project to my loving and supportive family. I am extremely grateful for my husband, Jason Kainer, for his constant support and words of encouragement to me throughout this journey, and continuous sacrifices to manage our household and care for our children.

I grateful for my three children, David, Jacie, and Jolie who gave up family time, supported each other with homework, and stepped up around the house as I dedicated time to achieve my DNP. My children are absolutely my biggest ‘why’ and I hope they have learned that with determination and perseverance they too can achieve anything they set their minds to.

I also want to say a special thanks to my parents, mother-in-law, and countless friends who supported me with words of encouragement as well as supporting my children at sporting events and giving them rides while I was achieving this goal. I also want to thank my professional mentors who believed in me throughout my career and my DNP journey.

Acknowledgments

I would like to acknowledge everyone who played a role in supporting me throughout my DNP journey to earn this finite nursing degree. The journey had its ups and downs, but I could always rely on you to pick me up when I was down and celebrate my accomplishments.

I also want to acknowledge my Walden DNP project mentor and committee as well as all Walden professors and staff who supported my professional growth and guided me through the completion of this project.

Table of Contents

List of Figures iii

Section 1: Introduction 1

Introduction 1

Problem Statement 2

Purpose 4

Nature of the Doctoral Project 6

Significance 8

Summary 11

Section 2: Background and Context 13

Introduction 13

Concepts, Models, and Theories 13

Concept 14

Iowa Model of Evidence-Based Practice Change 15

Lewin's Theory of Planned Change 16

Relevance to Nursing Practice 17

Local Background and Context 18

Role of the DNP Student 20

Summary 21

Section 3: Collection and Analysis of Evidence 23

Introduction 23

Practice-Focused Question 24

Sources of Evidence....24
Published Outcomes and Research....25
Archival and Operational Data....26
Analysis and Synthesis....27
Summary....29
Section 4: Findings and Recommendations....31
Introduction....31
Findings and Implications....32
Recommendations....35
Strengths and Limitations of the Project....37
Section 5: Dissemination Plan....39
Analysis of Self....39
Summary....41
References....42

List of Figures

Figure 1. Hyperbilirubinemia Neonates Transferred Prior to Implementation (November 2021 - October 2022) 34

Section 1: Introduction

Introduction

Hyperbilirubinemia is an increased level of bilirubin circulating in the blood that develops when it is not adequately filtered by the liver (Centers for Disease Control and Prevention [CDC], 2022). A common condition among neonates, hyperbilirubinemia can cause permanent damage to the brain without timely and proper treatment (CDC, 2022; Kuzniewicz et al., 2021). According to the pediatric intensive care unit (PICU) assistant clinical director (ACD), otherwise healthy neonates initially evaluated in the emergency department (ED) at the community-based hospital requiring inpatient treatment for hyperbilirubinemia have been traditionally transferred to the tertiary care facility when they could be safely cared for at the community-based facility (Leary et al, 2019; So & Khurshid, 2022). The unnecessary transfer of these otherwise healthy neonates out of their community for this care increases the cost to the patient and the organization, reduces access to the appropriate level of care, decreases the quality of care, and places undue burden on families. Caring for otherwise healthy neonates with hyperbilirubinemia within their own community will improve the quality of care, reduce the cost of that care, increase access to the appropriate level of care at the community-based and tertiary care facilities, and foster a patient and family-centered approach to care (Al Maghaireh et al., 2017; Leary et al., 2019; Masterson & Brenner, 2016; Sunny et al., 2020).

An evidence-based, organizational protocol for the care of these neonates at the community-based facility was recently implemented as a quality improvement (QI) initiative. Improving the quality of care, decreasing the cost of that care, increasing

access to the appropriate level of care at the community-based and tertiary care facilities, and reducing the burden placed on families were the main goals of that project. Evidenced-based evaluation is an essential component of the QI process, and the purpose of the Doctor of Nursing Practice (DNP) project is to evaluate that QI initiative (White et al., 2021). The DNP project will promote positive social change by utilizing evidence-based principles and practices to inform processes, guide clinical practice, and solve clinical problems.

Problem Statement

A common, treatable problem among neonates, hyperbilirubinemia is an increased level of bilirubin circulating in the blood (CDC, 2022). Without timely and proper treatment, hyperbilirubinemia can advance to kernicterus, causing permanent damage to the brain (CDC, 2022; Kuzniewicz et al., 2021). According to the ACD, neonates who present to the ED at the community-based facility with symptoms of hyperbilirubinemia have traditionally been transported to the tertiary care facility if inpatient treatment is required. Transferring otherwise healthy neonates with hyperbilirubinemia outside of their communities decreases the quality of patient care and increases the cost of that care to the patient and the organization (Brown et al., 2020; Franz & Cronin, 2020; Sunny et al., 2020). This practice decreases access to care within the patient's own community and decreases the availability of level IV neonatal intensive care unit (NICU) beds to critically ill neonates across the state (Bawazeer et al., 2021; Leary et at., 2019). It also increases parental anxiety and places an undue burden on the

families of these neonates (Al Maghaireh et al., 2017; Lorch et al., 2021; Sunny et al., 2020).

Patients and families are positively impacted when the healthcare they need is accessible within their own communities (Lorch et at., 2021; Masterson & Brenner, 2016; Schutte et al., 2022). According to the medical director (MD), the organization's main purpose for establishing the community-based facility was to provide specialized care to children within their own community. Addressing the automatic transport of otherwise healthy neonates with hyperbilirubinemia from the community-based hospital to the tertiary care facility is essential to fulfilling that purpose. Uncomplicated neonatal hyperbilirubinemia can and should be safely managed at community-based pediatric hospitals (Leary et al, 2019; So & Khurshid, 2022). Transporting these neonates out of their own communities to occupy a Level IV NICU bed is a costly clinical practice problem that negatively impacts the quality of patient care, increases the amount of time the tertiary care facility spends on NICU alert, decreases access to the appropriate level of care for critically ill neonates across the state (Al Maghaireh et al., 2017; Leary et at., 2019). Further, undue stress is placed on the family, and unnecessary anxiety is created for the parents of these otherwise healthy newborns (Al Maghaireh et al., 2017; Sunny et al., 2020). Using an evidence-based approach to address this clinical practice problem will likely reduce cost to the organization and the patient, improve the quality of care, increase access to the appropriate level of care, and foster a patient and family-centered approach to care.

Addressing the automatic transport of otherwise healthy neonates with hyperbilirubinemia from the community-based hospital to the tertiary care facility is significant to the practice of nursing in many ways. The provision of high-quality, evidence-based, patient-centered, cost-effective, accessible care is essential to improving patient outcomes (Blumovich et al., 2020; Leary et al, 2019). DNP-prepared nurses are expected to possess the knowledge and skills required to identify practice problems that impede the provision of that care and develop evidence-based solutions to eliminate the gaps in practice that causes those problems (American Association of Colleges of Nursing [AACN], 2006). The AACN established eight essential curricular elements for DNP programs (AACN, 2006). Essential II, "Organizational and Systems Leadership for Quality Improvement and Systems Thinking," most closely aligned with this DNP project (AACN, 2006). The organization implemented an evidence-based protocol for the care of otherwise healthy neonates at the community-based facility as a QI initiative to address the clinical practice problem. Evaluation is a critical component of evidence-based QI processes and initiatives, and the purpose of the DNP project was to evaluate the existing QI project within the organization (White et al., 2021). Evidence-based practices and principles were used to inform the evaluation process and the recommendations formulated based on that evaluation.

Purpose

According to the ACD, otherwise healthy neonates requiring inpatient treatment for hyperbilirubinemia have traditionally been transferred from the community-based, pediatric hospital to the tertiary care facility. This practice decreases the quality of care,

increases the cost of care, reduces access to the appropriate level of care at the community-based and tertiary care facilities, and places an undue burden on patients and their families (Al Maghaireh et al., 2017; Franz & Cronin, 2020; Sunny et al., 2020). Neonates with hyperbilirubinemia who are otherwise healthy can be safely cared for within the community-based, pediatric hospital (Brown et al., 2020; Leary et al., 2019). Leadership within the organization identified the lack of an evidence-based protocol for the care of these neonates at the community-based facility as the gap-in-practice causing the clinical practice problem; therefore, an evidence-based protocol for the care of these patients was implemented as a QI project. Evaluation of that project was the focus of the DNP project. That evaluation was intended to answer the following clinical question: Will the implementation of an evidence-based, organizational protocol increase the quality of care and decrease the cost of caring for neonates with hyperbilirubinemia in the community-based, pediatric acute care hospital?

Implementation of an evidence-based protocol for the care of the neonate with hyperbilirubinemia at the community-based facility will bridge the gap-in-practice to solve the identified clinical practice problem by improving the quality of patient care, while reducing the cost of that care (Brown et al., 2020; Leary et al., 2021; So & Khurshid, 2022). Availability of this care within the community-based facility will decrease the cost of care and undue burden placed on the families of these patients, while increasing the quality of care, access to the appropriate level of neonatal care, and access to specialized, pediatric care within the patient's own community, decrease the undue burden currently placed on the patient's family, and foster a patient and family-centered

approach to care (Al Maghairesh et al., 2017; Brown et al., 2020; Franz & Cronin, 2020; Sunny et al., 2020; So & Khurshid, 2022). An evidence-based protocol for the care of these neonates was recently implemented as a QI project at the community-based facility. This DNP project focused on using evidence-based principles and practices to evaluate that existing QI initiative.

Nature of the Doctoral Project

Transferring otherwise healthy neonates with hyperbilirubinemia from the community-based pediatric hospital to the tertiary care facility decreases access to care, increases the cost of care, and reduces overall quality of care (Al Maghaireh et al., 2017; Leary et al., 2019; Sunny et al., 2020). Based on financial and other organizational data, as well as the best available evidence extracted from the current, scholarly literature, leaders within the organization identified the lack of an evidence-based protocol for the care of those neonates at the community-based facility as the gap-in-practice causing the clinical practice problem (Brown et al., 2020; Leary et al., 2021; So & Khurshid, 2022). Such a protocol was recently implemented within that facility as a QI project to bridge that gap-in-practice and solve the clinical practice problem. The DNP project was focused on the utilization of evidence-based principles and practices to evaluate that initiative.

Key search terms and Boolean phrases were derived from the clinical question to search the internet and multiple databases in the Walden University Library for scholarly sources to support both projects. The Elton B. Stephens Company (EBSCO), Cumulative Index of Nursing and Allied Health Literature (CINAHL), Ovid, and PubMed databases

in the Walden University Library were used to search for current, peer-reviewed journal articles and literature reviews. An extensive search of the internet for current and relevant clinical practice guidelines, white papers, and best practices from relevant professional and regulatory organizations, including the American Academy of Pediatrics (AAP), Children's Hospitals' Solutions for Patient Safety (SPS), Agency for Healthcare Research and Quality (AHRQ), American Association of Colleges of Nursing (AACN), and the National Association of Neonatal Nurses (NANN), was undertaken.

Peer-reviewed research articles, white papers, and clinical practice guidelines were saved in an electronic folder. Specific information was extracted from each source type and organized in an Excel Workbook, with each source type having a designated spreadsheet. In the first spreadsheet, peer-reviewed research articles were arranged alphabetically by the primary author's last name and included a full citation of the article. The theoretical and/or conceptual framework, methodology, results, and researchers' recommendations from each article were included with each entry. In the second spreadsheet, white papers were listed alphabetically by the primary author's last name. Each entry included a full citation and a note indicating its relevance to the clinical practice problem. Clinical practice guidelines and best practices by the publishing organization were organized in the third spreadsheet. Relevant information including prevention, risk assessment, monitoring, and treatment were extracted from each guideline and included in the entry.

Automatic transfer of otherwise healthy neonates with hyperbilirubinemia to the tertiary care facility from the community-based hospital reduces access to care, increases

the cost of care, and decreases overall quality of care at both facilities (Al Maghaireh et al., 2017; Leary et al., 2019; Sunny et al., 2020). An evidence-based protocol for the care of those neonates will likely bridge the gap-in-practice and address the clinical practice problem, thereby increasing access to care at both facilities, reducing the cost of care, and improving the overall quality of care (Al Maghaireh et al., 2017; Leary et al., 2019; Sunny et al., 2020). Implementation of such a protocol will also decrease the undue burden currently placed on families, while facilitating a patient-centered approach to care across the organization (Al Maghairesh et al., 2017; Franz & Cronin, 2020; Sunny et al., 2020).

Significance

Transferring otherwise healthy neonates with hyperbilirubinemia from the community-based hospital to the tertiary care facility reduces access to care, increases the cost of care, and decreases overall quality of care at both facilities (Al Maghaireh et al., 2017; Leary et al., 2019; Sunny et al., 2020). These neonates can be safely cared for at the community-based facility (Brown et al., 2020; Leary et al., 2019). An evidence-based protocol for the care of otherwise healthy neonates with hyperbilirubinemia was recently implemented at the community-based facility to bridge this gap-in-practice and solve the practice problem. Evaluation is a critical component of QI initiatives (White et al., 2021). The purpose of this DNP project was to evaluate that existing QI initiative within the organization.

The DNP project requires the use of evidence-based principles and practices to determine if increased access to care, decreased the cost of that care, and improved the

overall quality of care delivered within the organization. Major stakeholders in the project included the organization's board of directors and leadership, as well as the leadership of the community-based and tertiary care facilities. According to the MD, to increase access to quality, affordable healthcare, the organization established a community-based hospital to provide specialized care to children within their own communities. Establishing an evidence-based protocol for the care of otherwise healthy neonates with hyperbilirubinemia at the community-based facility will help fulfill that purpose. The organization loses revenue with the unnecessary, automatic transfer of otherwise healthy neonates with hyperbilirubinemia from the community-based to the tertiary care facility (Sunny et al., 2020). Revenue is lost when an empty bed at the community-based facility could have been occupied by patients from within the community. The organization also loses revenue when beds at the tertiary care facility are unnecessarily occupied by these otherwise healthy patients those beds could be occupied by a neonate requiring a higher level of NICU care to survive. Further, revenue is lost transporting these patients from one facility to another (Sunny et al., 2020). Post-implementation, the community-based and tertiary care facilities should have more beds available to the patients who need them. Expansion of bed availability across the organization will increase revenue generation and decrease the cost of care almost instantly.

Other stakeholders include staff in the PICU at the community-based hospital, NICU staff at the tertiary care facility, patients, families, third party payors, and the community. Members of the PICU staff at the community-based hospital will benefit

from the knowledge gained and skills developed from caring for neonates with hyperbilirubinemia. NICU staff at the tertiary care facility will have an increased capacity to provide the highest level of specialized care to the sickest neonates in the state, while decreasing the number of days the unit is on NICU alert. Third-party payors and parents of these patients will benefit from a reduction in the cost associated with the care of these patients. Transferring otherwise healthy neonates with hyperbilirubinemia out of their community for this care places an undue burden on these families. Access to this care within their own community will eliminate this burden. Finally, the community will benefit from the availability of and access to this care within their own community.

Nurses have a responsibility to their patients and the profession of nursing to provide high quality, evidence-based, cost-effective care, and nurses are obligated to provide care based on scholarly research and evidence (ANA, 2015). The DNP-prepared nurse is responsible for promoting patient safety, eliminating health disparities, and improving patient outcomes (AACN, 2006). This DNP project was focused on utilizing evidence-based principles and practices to evaluate the implementation of an evidence-based protocol for the care of otherwise healthy neonates in the community-based facility. The DNP project is significant to nursing practice, as it utilizes the best available evidence to solve a clinical practice problem, increase access to care, decrease the cost of care, and improve patient outcomes.

Walden University is committed to creating positive social change on a global scale (Walden University, 2022). As part of that commitment, Walden University prepares students to facilitate social change at the local, state, national, and global levels

by identifying problems and implementing evidence-based strategies to solve those problems (Walden University, 2022). Community-based hospitals across the United States routinely transfer otherwise healthy neonates with hyperbilirubinemia out of their community for care; therefore, this problem is not exclusive to one organization (Al Maghaireh et al., 2017; Bawazeer et al., 2021; Sunny et al., 2020). These patients can be safely managed in a community-based hospital by implementing an evidence-based protocol for the provision of that care (Leary et al., 2019; So & Khurshid, 2022). Such a protocol was recently implemented at the community-based hospital as a QI project, and evaluation of that initiative was the focus of the DNP project. Results of that evaluation will be published world-wide; therefore, the DNP project holds the potential to contribute to similar evidence-based clinical changes that will improve access to quality, cost-effective, patient-centered healthcare across the country and around the world. The DNP project will promote positive social change by utilizing evidence-based principles and practices to inform processes, guide clinical practice, and solve clinical problems.

Summary

Automatic transfer of otherwise healthy neonates with hyperbilirubinemia to the tertiary care facility from the community-based hospital reduces access to care, increases the cost of care, and decreases overall quality of care (Al Maghaireh et al., 2017; Leary et al., 2019; Sunny et al., 2020). An evidence-based protocol for the care of these patients was recently implemented as a QI initiative to bridge the gap-in-practice and address the clinical practice problem. Major goals of that initiative were to increase access to care at both facilities, reduce the cost of care, and improve the overall quality of care within the

organization. The focus of this DNP project was to evaluate the implementation of that QI initiative. The utilization of evidence-based principles and practices to inform process, guide clinical practice, and solve clinical problems will promote positive social change. In Section two, the historical background of the clinical practice problem and its relevance to nursing practice will be discussed. Relevant concepts and practice change models will be discussed, as will the specifics related to the DNP student's role in the project.

Section 2: Background and Context

Introduction

The focus of the DNP project was to use evidence-based principles and practices to evaluate an existing QI project to facilitate the provision of high-quality, evidence-based care to otherwise healthy neonates with hyperbilirubinemia at a community-based hospital. Increasing access to care, decreasing the cost of that care, and improving the overall quality of care across the organization are the main goals of the organization's QI project. As discussed in the previous section, the community-based, pediatric hospital has traditionally transferred all otherwise healthy neonates requiring inpatient treatment for hyperbilirubinemia to the tertiary care facility. This practice increases the cost of care, decreases access to care, and reduces the overall quality of care across the organization. The evaluation of the organization's QI project intended to answer the following question: Will the implementation of an evidence-based, organizational protocol increase the quality of care and decrease the cost of caring for neonates with hyperbilirubinemia in the community-based, pediatric acute care hospital? The background and context related to the clinical practice problem and its relevance to nursing will be discussed in this section as well as the concepts, models, and theories used to inform the DNP project and the role of the DNP student.

Concepts, Models, and Theories

Nursing concepts, models, and theories are imperative to the improvement of nursing practice and the care of patients and provides structure to collecting data, gives purpose to nursing practice, and promotes systematic and coordinated care (McEwen &

Willis, 2019). The organization used the nursing concept of access to care, Iowa Model of Evidence-Based Practice, and Kurt Lewin's theory of planned change as frameworks to guide the project. These concepts and frameworks provided structure and guidance to the organization's QI project to facilitate the provision of high-quality, evidence-based care to otherwise healthy neonates with hyperbilirubinemia at a community-based hospital.

Concept

Concepts in nursing are derived from research and nursing practice and can be concrete, abstract, variable, non-variable, operational, or theoretical (McEwen & Willis, 2019). The concept or phenomenon in nursing for this project was access to care. According to the ACD, neonates who present to the ED at the community-based facility with symptoms of hyperbilirubinemia have traditionally been transported to the tertiary care facility if inpatient treatment is required. Transferring otherwise healthy neonates with hyperbilirubinemia outside of their communities decreases the quality of patient care while increasing the cost of that care to the patient and the organization (Brown et al., 2020; Franz & Cronin, 2020; Sunny et al., 2020). Best practice in healthcare is to provide access to the appropriate level of care at community-based and tertiary care facilities (Franz & Cornin, 2020; Leary et al., 2019). According to the MD, the provision of specialized care to children within their own community was the organization's main purpose when the community-based facility was established and access to care for the hyperbilirubinemia neonate was the goal of the organization's QI project.

Iowa Model of Evidence-Based Practice Change

The use of an evidence-based model or change framework provides the health care team with a guide for successful implementation (Buckwalter et al., 2017). Speroni et al., (2020) conducted a sectional survey research study to collect information from nursing research leaders in Magnet designated hospitals, in which evidence-based practice model is most utilized. Ninety percent of health care organizations are using the Iowa Model of Evidence-Based Practice, Johns Hopkins Nursing Evidence-Based Practice Model, and Advancing Research and Clinical Practice Through Close Collaboration Model (Speroni et al., 2020). The Iowa Model of Evidence-Based Practice was developed in the 1990s by a team of nurses from the University of Iowa Hospitals and Clinics (UIHC) and the College of Nursing; it was revised in 2015 (Buckwalter et al., 2017).

The first step in the Iowa Model of Evidence-Based Practice is to identify issues or opportunities for improvement and state the question (Buckwalter et al., 2017). Access to care for infants with hyperbilirubinemia at the community-based facility, rather than transferring them to the tertiary care facility, was the identified opportunity for improvement. The next step in the model is to form a team and assemble, appraise, and synthesize the evidence (Buckwalter et al., 2017). This team included stakeholders from the community-based facility's acute care and PICU medical and nursing staff, the tertiary care facility's NICU medical and nursing staff, and parents and families of hyperbilirubinemia neonates.

Following implementation, the next step is to evaluate if the change is appropriate for adoption in practice; if yes, the final steps are to integrate and sustain the practice change followed by the dissemination of the results (Buckwalter et al., 2017). The QI project completed at the organization was the implementation of an evidence-based organizational protocol focused on the care of the hyperbilirubinemia neonate following the Iowa Model of Evidence-Based Practice. This model was used to provide structure and guidance to implement an evidence-based change practice.

Lewin's Theory of Planned Change

With rapidly changing best practices in healthcare, the sustainability of the change can be the most challenging (White et al., 2021). In the early 1950s, Kurt Lewin developed an organizational theory of change via a three-phase model that also accounts for the balance of driving and restraining forces (White et al., 2021). This change theory is used in the implementation of QI and evidence-based practice projects often, as it is simple to understand and implement (White et al., 2021). Kurt Lewin's theory of planned change states the driving forces, restraining forces, and state of equilibrium control the behaviors and actions of those affected by the change (White et al., 2021). The first phase is the unfreezing phase where the staff disregards the current situation (White et al., 2021). Next is the second phase or changing phase, where the staff implements the change and equalizes the driving and restraining forces. The final phase is refreezing where the change is sustained (White et al., 2021). The QI project completed at the organization was the implementation of an evidence-based organizational protocol focused on the care of the hyperbilirubinemia neonate at the community-based hospital.

Relevance to Nursing Practice

According to the ACD, due to the lack of an evidence-based, organizational protocol for the care of neonates with hyperbilirubinemia, those who can be safely managed at the community-based facility are transferred to the tertiary care facility. The unnecessary transfer of otherwise healthy neonates with hyperbilirubinemia to a tertiary care facility has a negative impact on the community-based and tertiary care facilities, patients, and their families (Bawazeer et al., 2021; Sunny et al., 2020). In contrast, patients and their families are positively impacted by the availability of this care within their own community by decreasing the tremendous undue burden associated with transferring their newborns to another facility, the risks associated with transport, and the out-of-pocket expenses associated with critical care transports and lack of availability of this care within their own community (Masterson & Brenner, 2016; Sunny et al., 2020). Transferring neonates with hyperbilirubinemia simply in need of phototherapy to a tertiary care facility increases the demand for critical care transport staff, decreases the availability of critical care beds for sicker neonates, creates a greater financial burden for the facility, and contributes to the tertiary care facility's time on NICU alert (Al Maghaireh et al., 2017; Leary et al., 2019; Sunny et al., 2020).

Increased access to health care and services within the community patients reside is current best practice and the standard of care that should be provided for neonates with hyperbilirubinemia (Bawazeer et al., 2021; Franz & Cronin, 2020; Kemper et al., 2022). As best practices have evolved and the care of pediatric patients and children's hospitals

have grown into the suburbs, it is imperative for organizations to reassess and implement new practices to improve care in the community.

Neonates with hyperbilirubinemia who are otherwise healthy can be safely cared for within a community-based, pediatric hospital (Brown et al., 2020; Leary et al., 2019). The DNP project evaluated the implementation of an evidence-based, organizational protocol to improve care of hyperbilirubinemia neonate addressing the gap in practice. Nurses and medical providers were empowered to provide care to the full potential of their license and expand the services and access to care provided at the community-based facility. According to the MD, this practice change helped reach the organizational purpose to care for the children and their families within the community they reside in.

Local Background and Context

The organization where the DNP project was conducted expanded over 10 years ago, opening a community-based facility with the purpose of providing care to children in the community and to ease the burden of traveling to the tertiary care facility according to the MD. As changes in access to care and needs of the patients arise, the organization evaluates evidence-based practice to ensure patients are receiving high-level care in the best location. Due to the lack of an evidence-based, organizational protocol for the care of neonates with hyperbilirubinemia, those who can be safely managed at the community-based facility are transferred to the tertiary care facility. According to the ACD, numerous parents of hyperbilirubinemia neonates in the community-based facility ED were requesting admission to the community-based facility and expressing their concerns regarding the risk and burden of transport to the tertiary care facility.

The unnecessary transfer of otherwise healthy neonates with hyperbilirubinemia to a tertiary care facility has a negative financial impact on the community-based facility, patients, and their families (Bawazeer et al., 2021). According to the ACD, there is a significant loss of revenue associated with transferring these patients to another facility where they could be safely cared for in-house. Cost associated with travel, meals, and daily parking increases the financial burden placed on the parents of these neonates and their extended family (Blumovich et al., 2020; Sunny et al., 2020).

The institutional context for the DNP project was a community-based, pediatric acute care hospital in the Southcentral region of the United States. The main objective of the DNP project was to use evidence-based principles and practices evaluate the implementation of an evidence-based, organizational protocol that facilitates the provision of high-quality, evidence-based care within the patient's community. This objective was met.

To better understand the organization's QI project and DNP project, it is important to understand NICU alert at the organization. When the tertiary care facility's NICU is on NICU alert, the unit is close to maximum capacity. All incoming NICU transfers from outside facilities are triaged and evaluated by the MD for admission necessity. Based on the status of the neonate and bed availability, the transport is either accepted or denied. When less critical infants who could be cared for in the community-based facility are inpatient at the tertiary care facility's NICU, more critical infants may be denied admission.

Role of the DNP Student

The author is currently a DNP student at Walden University and an employee of the organization where the DNP project was completed. The author has worked for 18 years in the tertiary care facility's NICU as a bedside registered nurse (RN), charge RN, patient care manager (PCM), and ACD. Over three years ago the author transferred to the community-based facility into a house supervisor role. The house supervisor often interacts with patients, families, and staff throughout the hospital.

The author and DNP student was the project lead and evaluated the implementation of the organizational, evidence-based protocol to care for the hyperbilirubinemia infant at the community-based facility. The author worked closely with the key stakeholders at the community-based facility and the tertiary care facility. Following approval from all stakeholders, the author used evidence-based principles and practices to evaluate the implementation of an organizational, evidence-based protocol to care for hyperbilirubinemia neonates at the community-based facility. First, the author conducted a background literature search and collected and analyzed peer-reviewed articles, white papers, best practices, and clinical practice guidelines. Next, the author collected and analyzed pre- and post-implementation data to evaluate the impact of the organizational change for improvement to care for hyperbilirubinemia neonates at the community-based facility. The project data analysis and results were then presented to the key stakeholders by the author.

Motivation to conduct the DNP project was based on the negative emotions of anxiety and disappointment families displayed by parents in the ED, particularly when

told their neonate required transport to the tertiary care facility. The author empathized with them and felt their fear and anxiety. In addition, during the author's practicum experience at the tertiary care facility NICU, the author had the opportunity to see the challenges and effects of the NICU operating at or above capacity. The author did not have any potential biases to the DNP project.

Nurses hold an important responsibility to advocate for and serve as change agents to facilitate high-quality, cost-effective, evidence-based, family-centered care to all those entrusted to their care (ANA, 2015). DNP-prepared nurses have an obligation to lead and influence changes in practice to improve care for the patients and families as well as improve health disparities and population health (AACN, 2006). The DNP-prepared nurse also influences health care by designing and implementing health policy at the organizational level to facilitate the provision of cost-effective, evidence-based, high-quality, timely patient care (AACN, 2006). The author fulfilled the obligations of the DNP-prepared scholar practitioner by using evidence-based principles and practices to evaluate the implementation of an evidence-based, organizational protocol to care for the hyperbilirubinemia neonate at the community-based facility.

Summary

According to the ACD, due to the lack of an evidence-based, organizational protocol otherwise health neonates with hyperbilirubinemia presenting to the community-based facility ED who could be safely managed at the community-based facility are being transferred to a tertiary care facility. With the use of Lewin's theory of planned change and the Iowa model of evidence-based practice change, an organizational protocol was

implemented to care for the hyperbilirubinemia infant at the community-based facility as a QI project. The focus of the DNP project was to evaluate the impact of the implementation of an evidence-based, organizational protocol at the community-based hospital. The collection and analysis of evidence from the literature and from facility data are discussed in further detail in the next section.

Section 3: Collection and Analysis of Evidence

Introduction

In the community-based, pediatric acute care hospital, the setting for this DNP project, the lack of an evidence-based, organizational protocol for the care of neonates with hyperbilirubinemia was identified by the organization as a gap-in-practice causing the clinical practice problem. According to the ACD, neonates initially evaluated in the ED at the community-based hospital who require inpatient treatment of hyperbilirubinemia have been traditionally transferred to the tertiary care facility. The unnecessary transfer of otherwise healthy neonates with hyperbilirubinemia to a tertiary care facility has a negative impact on the community-based hospital, patients, and their families (Bawazeer et al., 2021; Sunny et al., 2020). There is an evidenced need to collect and analyze operational data to show the significance of the change The DNP project focused on the use of evidence-based principles and practices to evaluate the implementation of an organizational protocol to care for the hyperbilirubinemia infant at the community-based hospital.

The collection and analysis of the evidence to answer the practice-focused question addressing the care of the hyperbilirubinemia neonates at the community-based facility is discussed in Section three. It is important to further explore and address the practice-focused question, gap-in-practice, and the identified issue within the organization. Sources of evidence, past and present operational data, data collection, analysis, and the organization of the data are detailed in this section.

Practice-Focused Question

Over 10 years ago, the organization expanded its services and opened a community-based facility to care for children and their families within the suburbs in which they reside, according to the MD. The community-based facility needed an organizational, evidence-based protocol for the care of neonates with hyperbilirubinemia. The lack of such a protocol created the gap in practice causing the clinical practice problem. The purpose of the DNP project was to evaluate the implementation of an evidence-based, organizational protocol at the community-based facility to provide high-quality, cost-effective care for the hyperbilirubinemia neonate. The evaluation of the organization's QI project intended to answer the following question: Will the implementation of an evidence-based, organizational protocol increase the quality of care and decrease the cost of caring for neonates with hyperbilirubinemia in the community-based, pediatric acute care hospital?

Sources of Evidence

Organizational leadership identified the lack of an evidence-based, organizational protocol for the care of neonates with hyperbilirubinemia at the community-based facility as the gap-in-practice causing the clinical practice problem. Such a protocol was implemented as a QI project at the community-based facility, and the evaluation of the initiative is the DNP project. The author performed a literature review and appraisal of current and scholarly articles, white papers, best practices, and clinical practice guidelines. Archival and operational data were also collected to support the practice focused question. The collection and analysis of published outcomes and research and the

archival and operational data was used to address the practice-focused question by supporting the care of the otherwise healthy hyperbilirubinemia neonate at the community-based hospital.

Published Outcomes and Research

The author sought out the best available evidence and research focused on caring for hyperbilirubinemia infants. . Using key search terms and Boolean phrases derived from the clinical question, peer-reviewed, scholarly journal articles were obtained from various relevant databases including EBSCO, CINAHL, Ovid, and PubMed. Keywords searched included *hyperbilirubinemia, jaundice, neonate, quality improvement, evidence-based protocol, Iowa Change Model, Lewin's Theory of Planned Change,* and *financial impact*. Literature from relevant professional organizations and regulatory websites including the AAP, SPS, AHRQ, and NANN was also reviewed and analyzed.

Peer-reviewed research articles, white papers, and clinical practice guidelines were saved in an electronic folder on the author's computer hard drive. Specific information extracted from each type of source was organized in an Excel workbook, with each having a designated spreadsheet. The first spreadsheet listed the peer-reviewed research articles alphabetically by the primary author's last name and included a full citation of the article. The author also extracted the theoretical and/or conceptual framework, methodology, results, and researcher's recommendations of the article and included them in the entry. The second spreadsheet listed the white papers alphabetically by the primary author's last name. Each entry included a full citation and a note indicating its relevance to the clinical practice problem. Next, the clinical practice

guidelines and best practices were listed by the publishing organization in the third spreadsheet. Relevant information including prevention, risk assessment, monitoring, and treatment were extracted from each guideline and included in the entry. The organization of scholarly literature provided a concise display of the evidence.

Archival and Operational Data

Front Door is the robust data collection and retrieval system established at the organization to facilitate a continuous quality improvement process within the facility, while also protecting confidential and patient information. This system is managed by BIAs within the facility. The first step to obtaining the deidentified data points needed to evaluate the project was to submit a data request form through Front Door. The data points requested were neonates with the diagnosis of hyperbilirubinemia, days of life, weight, gestational age, total bilirubin levels throughout the admission, disposition, length of stay, and treatment 12 months prior to the implementation of the protocol and 60 days following.

All requested data points were pulled from electronic patient records by the assigned BIA, who organized the data into a deidentified report. The deidentified data report was securely stored in a locked cabinet within the facility and the report was shredded within the facility upon completion of the project. Using this approach preserved and protected the confidentiality of the facility and its patients. To ensure the protection of human subjects, approval to conduct the project was received from the local facility and the Walden University Institutional Review Board (IRB; IRB #02-09-23-

0378912) prior to the collection of any data to support the need for, or to evaluate the DNP project (Walden University, 2022).

Pre- and post-implementation data of the number of neonates diagnosed with hyperbilirubinemia transferred from the community-based facility to the tertiary care facility was analyzed. The average cost of the transfer over the 12-month period preceding implementation was used to calculate cost savings to the organization. In addition, the average length of stay of the hyperbilirubinemia neonate at the tertiary care NICU for the 12 months prior to the implementation was used to calculate the increase in NICU bed availability. Limitations to the data collection and analysis were data availability, retrospective data, and autogenerated data from the EHR.

Analysis and Synthesis

Evaluation of the implementation of the QI project at the community-based facility was completed to fulfill the requirements of the DNP project and is an acceptable capstone project to meet the requirements for successful completion of the DNP program (Walden University, 2020). To evaluate the implementation of the QI project, an extensive analysis of peer-reviewed articles, white papers, best practices, and clinical guidelines was performed. With the use of current and best available evidence, the author evaluated the implementation of an evidence-based, organizational protocol for the care of neonates with hyperbilirubinemia at the community-based facility.

The DNP project evaluated the implementation of an evidence-based, organizational protocol focused on the care of hyperbilirubinemia neonates at the community-based facility. Results of the implementation were measured by evaluating

pre- and post-implementation data of the number of hyperbilirubinemia neonates who were transferred to the tertiary care facility NICU who could otherwise be safely cared for at the community-based facility. The author worked extensively with the assigned BIA to cross reference all data points to ensure the report was complete and all potential ICD 10 codes were included. Multiple data points were collected for 12 months prior to implementation and 60 days after implementation from the EHR by the assigned BIA, who organized the data into a deidentified spreadsheet. Requested data points were the number of neonates who presented to the community-based facility ED with the diagnosis of hyperbilirubinemia, days of life, weight, gestational age, total bilirubin levels throughout the admission, disposition, length of stay, and treatment 12 months prior to the implementation of the protocol and 60 days following. The use of a spreadsheet organized all data points efficiently and concisely. Deidentified data reports provided information to determine the number of hyperbilirubinemia neonates transferred to the tertiary care facility prior to implementation who following the implementation of the organizational protocol met admission criteria to be cared for at the community-based facility. The average length of stay of the hyperbilirubinemia neonate at the tertiary care facility NICU for the 12 months prior to the implementation was used to predict NICU bed availability. All deidentified data reports were securely stored in a locked cabinet within the facility, and shredded within the facility upon completion of the project. This approach was used to preserve and protect the confidentiality of the facility and its patients through the completion of the project.

The average cost of the transport of hyperbilirubinemia neonates was obtained from the transport company's invoice to the community-based facility for the 12 months prior to implementation provided by the community-based facility's director of nursing. The deidentified invoice was stored in the same locked cabinet as the data report and destroyed within the organization at the completion of the project. Average cost of the transport of hyperbilirubinemia neonates over the 12 months preceding implementation was used to predict cost savings to the organization. Retrospective calculation of the transport cost does not account for inflation, causing a limitation of the data.

Summary

In response to the identified clinical practice problem of transferring neonates with hyperbilirubinemia who could be safely cared for the community-based facility, the gap-in-practice of the lack of an evidence-based, organizational protocol for the care of the neonates with hyperbilirubinemia at the community-based facility was identified by the organization. The DNP project evaluated the implementation of an organizational, evidence-based protocol to care for the hyperbilirubinemia infant at the community-based facility to provide high-quality, cost-effective care to the hyperbilirubinemia neonate. A robust, scholarly literature review was conducted and findings were analyzed. All requested data points were extracted from EHR by the assigned BIA and organized into a deidentified report with pre-and post-implementation data.

The practice-focused clinical question for the DNP project was: Will the implementation of an evidence-based, organizational protocol increase the quality of care and decrease the cost of caring for neonates with hyperbilirubinemia in the community-

based, pediatric acute care hospital? Upon receipt of the final project committee approval of the proposal, Walden University IRB approval, and the practicum site approval, the DNP project was completed. Section four will focus on the project's findings, implications, and recommendations as well as the strengths and limitations of the project.

Section 4: Findings and Recommendations

Introduction

Traditionally, otherwise healthy newborns initially evaluated in the ED at the community-based facility requiring inpatient treatment for hyperbilirubinemia had been automatically transferred to the tertiary care facility. Most of these patients can be safely cared for at the community-based facility. The unnecessary transfer of these patients decreases the quality of care, increases the cost of care, reduces access to the appropriate level of care at the community-based and tertiary care facilities, and places an undue burden on patients and their families (Al Maghaireh et al., 2017; Franz & Cronin, 2020; Sunny et al., 2020). Organizational leadership identified the lack of an evidence-based protocol as the gap-in-practice causing the clinical practice problem. An evidence-based protocol for the care of otherwise healthy neonates in the community-based facility was implemented as a QI project. Decreasing the cost of care, increasing access to the appropriate level of care, and increasing the quality of care were the main goals of the QI project. The focus of the DNP project was to utilize evidence-based principles and practices to evaluate that QI initiative.

An extensive search of the current, scholarly literature was conducted to support the need for the DNP project. Key terms and Boolean phrases derived from the clinical question were used to search for peer-reviewed, scholarly journal articles from a variety of relevant databases, including EBSCO, CINAHL, Ovid, and PubMed. Internet searches were also conducted to obtain relevant clinical practice guidelines, white papers, and best practices. Professional organizations and applicable regulatory websites included the

AAP, SPS, AHRQ, and NANN. Deidentified archival and organizational data was obtained from the organization's BIAs.

The practice-focused clinical question for the DNP project was: Will the implementation of an evidence-based, organizational protocol increase the quality of care and decrease the cost of caring for neonates with hyperbilirubinemia in the community-based, pediatric acute care hospital? Completing the DNP project facilitated the provision of high-quality, cost-effective care to neonates with hyperbilirubinemia using an evidence-based approach to evaluate the implementation of organizational protocol. The DNP project will promote positive social change by utilizing evidence-based principles and practices to inform processes, guide clinical practice, and solve clinical problems.

Findings and Implications

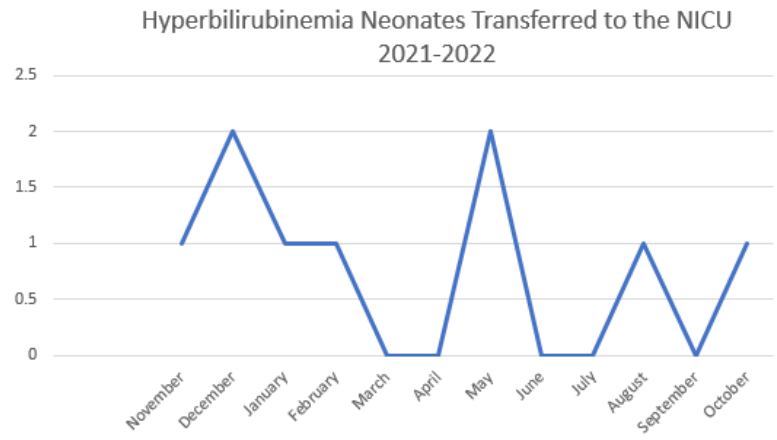
On November 1, 2022, the organization implemented an evidence-based, organizational protocol for the care of neonates with hyperbilirubinemia. The purpose of the DNP project was to evaluate the existing QI initiative 60 days post-implementation. That evaluation was based on a comparison of pre- and post-implementation data. The pre-implementation data was collected during the 12 months immediately preceding implementation of the QI project. Pre-implementation data points were compared to those same data points 60 days post-project implementation. The main goal of the organization's QI project was to facilitate the provision of high-quality, cost-effective care to neonates with hyperbilirubinemia using an evidence-based approach as evidenced by a reduction in the number of neonates with hyperbilirubinemia transferred to the

tertiary care facility, decreased cost to the organization, and increased level IV NICU bed availability at the tertiary care facility.

To evaluate the QI project, specific pre- and post-implementation data points were compared, beginning with the number of neonates with hyperbilirubinemia transferred to the tertiary care facility from the community-based facility's ED for 12 months prior to project implementation and 60 days post-implementation. In the 12 months prior to implementation, nine otherwise healthy neonates requiring inpatient treatment of hyperbilirubinemia were transferred to the tertiary care facility and could have been safely cared for at the community-based hospital. During the 60 days post-implementation, a single neonate was transferred to the tertiary care facility and should have been cared for at the community-based hospital based on the criteria outlined in the protocol. Upon further investigation, the transfer was ordered due to a lack of staff compliance with the new protocol.

Figure 1

Hyperbilirubinemia Neonates Transferred Prior to Implementation (November 2021 - October 2022)



Another measure that was examined was the financial burden to the organization associated with the unnecessary transport of these otherwise healthy neonates. The distance between the tertiary care facility and the community-based hospital is 25 miles, and the average cost of transporting these patients in 2022 was $495. In the evaluation of the cost of care savings, there is no account for inflation. A $4,455 savings within the first 12 months of project implementation was projected based on pre-implementation data. During the 60-day post-implementation evaluation period, only a single patient presented to the community-based facility for care who should have been cared for under the new protocol. The staff failed to comply with the protocol and transferred the one patient who, according to the protocol, should not have been transferred; therefore, there were no cost savings to the facility during the evaluation period.

NICU bed availability at the tertiary care facility was another factor considered in the evaluation of the QI project. In the 12 months prior to implementation, the average length of stay at the tertiary care facility for these patients was three nights. Pre-implementation data suggested an additional 27 nights of NICU bed availability at the tertiary care facility. The only otherwise healthy neonate with hyperbilirubinemia in need of inpatient treatment during the evaluation period was transferred due to a lack of staff compliance; therefore, no increase in NICU bed availability at the tertiary care facility was noted.

An evidence-based protocol for the inpatient care of otherwise healthy neonates with hyperbilirubinemia was implemented at the community-based facility as a QI project to address the unnecessary, automatic transfer of these patients to the tertiary care facility. The purpose of the DNP project was to evaluate the implementation of that project. The DNP project promoted positive social change at the organizational level, within the community, and across the state by using evidence-based principles and practices to inform process, guide clinical practice, and solve clinical problems.

Recommendations

An organizational, evidence-based protocol for the care of otherwise healthy neonates with hyperbilirubinemia was implemented at a community-based, pediatric hospital as a QI initiative to stop the unnecessary, automatic transfer of these patients who could be safely cared for at the community-based facility. The purpose of the DNP project was to evaluate that project 60 days post-implementation. Only a single patient subject to that protocol presented for care at the community-based facility within the

evaluation period, and that patient was unnecessarily transferred due to a lack of staff compliance with the protocol. Based on those findings, several evidence-based recommendations were made to facility leadership and stakeholders.

Due to the small sample size and the lack of compliance with the organizational protocol, the results of the organization's QI project did not indicate a positive impact to the organization, indicating the need for further evaluation (Hibbert et al., 2021). The positive impact of QI project implementation does not often immediately apparent, and time is often required to show improvement (Hibbert et al., 2021). Organizations must create a culture of continuous QI to show the positive impact of the project's implementation (Hibbert et al., 2021). Based on the foregoing, a recommendation was made to organizational leadership to continue monitoring the project but wait until 12 months of post-implementation data is available to formally evaluate the impact of the project, particularly in light of the very small number of patients impacted by the project. A sufficient amount of post-implementation data is critical to accurately assessing project implementation (Hibbert et al., 2021). As staff turnover occurs across the organization, it is important to ensure the good work implemented through QI projects is sustained and staff do not revert to the previous practice. Education contributes to the success and sustainability of QI projects (Hibbert et al., 2021). A recommendation was made to the organization leadership to provide education quarterly to current medical and nursing staff practicing in the community-based facility (Hibbert et al, 2021). For new medical and nursing staff, education must be provided during orientation and reinforced by their preceptor (Hibbert et al, 2021). The community-based facility leaders need to collate the

hyperbilirubinemia data report quarterly and evaluate the information for any gaps or relapses in practice.

Strengths and Limitations of the Project

One strength of the DNP project was the use of the organization's BIA to extract data from the EHR efficiently and accurately. The BIA was able to extract data points necessary to evaluate the implementation of the organizational protocol to care for hyperbilirubinemia neonates at the community-based facility. This provided pre- and post-implementation data to analyze and evaluate which contributed to the recommendations of the DNP project.

One limitation to the evaluation of an existing QI project was the small sample size from the 12 months prior to implementation and 60 days following implementation. Another limitation was the lack of compliance by the staff with the organizational protocol in the 60-day evaluation period. The infant who qualified per protocol to remain at the community campus was transferred to the tertiary center due to a lack of compliance by the staff. Due to the short evaluation period and small sample size, it is important for the organization to continue to evaluate the results of the implementation for compliance and success (Hibbert et al., 2021). Although the evaluation period for this project is short, it is likely with 12 months of data, the organization will have positive results of the implementation of the evidence-based protocol to care for the hyperbilirubinemia neonate at the community-based facility (Hibbert et al., 2021).

Upon completion of the DNP project, it is important to identify strengths and limitations to the project to guide recommendations. Due to the short evaluation period, it

is necessary for the organization to continue to evaluate the implementation of an evidence-based protocol for the care of the neonate with hyperbilirubinemia at the community-based facility for improved quality of care, decreased cost of care, and increased bed NICU bed availability at the tertiary care facility (Al Maghaireh et al., 2017; Franz & Cronin, 2020; Hibbert et al., 2021; Sunny et al., 2020). The leaders at the community-based facility will have access to the organization's BIA to continue to support with data extraction. Positive social change was promoted at the organizational level, within the community, and across the state by demonstrating the utilization of evidence-based principles and practices to inform processes, guide clinical practice, and solve clinical problems.

Section 5: Dissemination Plan

For a DNP student and nurse leader, it is imperative to share findings and information with others by disseminating projects through a variety of formats. The author will present the project findings, implications, and recommendations to the community-based facility's acute care, ED, and PICU medical and nursing leadership and the tertiary care facility's NICU nursing leadership team at the organization's monthly quality and safety meeting. In addition, the project findings will be disseminated at the unit level during the unit-based monthly staff meeting. An abstract will also be submitted in the spring of 2024 to the organization's annual Nursing Professional Day, an internal 1-day conference hosted by the nursing education department for interdisciplinary teams.

Externally, the author aims to reach a broader audience through abstract submission for publication or presentations at professional organization local, regional, and/or national conferences. An abstract will be submitted to the 2024 Society for Pediatric Nurses (SPN) and NANN conferences for podium or poster presentation. Sharing of information through one venue may also lead to additional opportunities to disseminate information to others.

Analysis of Self

As the author reflects on the journey to achieve a terminal degree in nursing, the author has grown and developed in many areas both personally and professionally. If there were one word to describe the journey it is *perseverance*. No matter the challenges that arose throughout the journey, the author continued to stay focused and grow as a practitioner, scholar, and project manager. Words cannot describe the level of

accomplishment felt completing this finite degree. The strength to overcome barriers will carry over into all aspects of life. When challenges arise as a nurse leader and DNP scholar, the author will have the knowledge and determination to persevere and accomplish the task at hand.

As project lead for the DNP project, the author evaluated an existing QI project on the implementation of an evidence-based organizational protocol at the community-based facility to improve the care of hyperbilirubinemia neonates. The 18 years of NICU experience as a bedside nurse and leader at the tertiary care facility afforded the author the unique opportunity to evaluate the care of hyperbilirubinemia neonates at the community-based facility. The completion of the project is personally and professionally rewarding; the author knows the organization will continue to focus on the care of hyperbilirubinemia neonatal patients at the community-based facility. The next few years of the author's career will be focused on expanding the scope of care provided to the neonatal population at the community-based facility. The author is passionate about serving the neonatal population, providing access to care close to home and improving patient experiences for neonates and their families. Through this scholarly journey, the author has built professional relationships with nursing and medical leaders at both the community-based facility and the tertiary care facility as well as faculty and staff at Walden University. Although the journey to achieve this degree is coming to an end, the author looks forward to using experience, knowledge, and expertise to provide high quality care to patients and their families as well as have a positive impact on the profession of nursing.

Summary

In conclusion, the DNP project was the evaluation the implementation of an organizational evidence-based protocol to care for hyperbilirubinemia infants at the community-based facility focused on providing high-quality, cost-effective care to hyperbilirubinemia neonatal patients. The evaluation of the QI project did not indicate a reduction in the number of neonates with hyperbilirubinemia transferred to the tertiary care facility, therefore, this failed to reduce transport costs to the organization, and increased access to the appropriate level of care at the community-based and tertiary care facilities. Limitations in the data were attributed to the short evaluation period and lack of compliance by the staff to follow the protocol. The recommendations include the need for the organization to continue to evaluate the implementation of the evidence-based protocol to care for the hyperbilirubinemia neonate at the community-based facility and ensure continued education to all medical and nursing staff. Utilization of evidence-based principles and practices to inform processes, guide clinical practice, and solve clinical problems promoted positive social change at the organizational level, within the community, and across the state. Celebrating the success of QI projects and continuing to evaluate the results can ensure change is sustained and encourage focus on continuous quality improvement.

References

Al Maghaireh, D. F., Abdullah, K. L., Chong, M. C., Chua, Y. P., & Al Kawafha, M. M. (2017). Stress, anxiety, depression, and sleep disturbance among Jordanian mothers and fathers of infants admitted to neonatal intensive care units: A preliminary study. *Journal of Pediatric Nursing, 36,* 132–140. https://doi.org/10.1016/j.pedn.2017.06.007

American Association of Colleges of Nursing. (2006). *DNP essentials*. https://www.aacnnursing.org/DNP/DNP-Essentials

American Nurses Association. (2015). *Code of ethics for nurses with interpretive statement*. Silver Spring.

Bawazeer, M., Alsalamah, R., Almazrooa, D., Alanazi, S., Alsaif, N., Alsubayyil, R., Althbaiti, A., & Mahmoud, A. (2021). Neonatal hospital readmissions: Rate and associated causes. *Journal of Clinical Neonatology, 10*(4), 233–238. https://doi.org/10.4103/jcn.jcn_64_21

Blumovich, A., Mangel, L., Yochpaz, S., Mandel, D., & Marom, R. (2020). Risk factors for readmission for phototherapy due to jaundice in healthy newborns: A retrospective, observational study. *BMC Pediatrics, 20*(1), 1–6. https://doi.org/10.1186/s12887-020-02157-y

Brown, S., Waldrop, J., D'Auria, J. & Haushalter, J. (2020). Improving evaluation and treatment of hyperbilirubinemia in late preterm infants. *Journal of Perinatal & Neonatal Nursing, 34*(4), 346–351. https://doi.org/10.1097/JPN.0000000000000523

Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., Rakel, B., Steelman, V., Tripp, R. T., & Tucker, S. (2017). Iowa model of evidence-based practice: Revisions and validation. *Worldviews on Evidence-Based Nursing, 14*(3), 175–182. https://doi.org/10.1111/wvn.12223

Centers for Disease Control and Prevention. (2022). What are jaundice and kernicterus? https://www.cdc.gov/ncbddd/jaundice/facts.html

Franz, B., & Cronin, C. (2020). Are children's hospitals unique in the community benefits they provide? Exploring decisions to prioritize community health needs among U.S. children's and general hospitals. *Frontiers in Public Health, 8*. https://doi.org/10.3389/fpubh.2020.00047

Hibbert, P.D., Basedow, M., Braithwaite, J., Wiles, L.K., Clay-Williams, R., & Padbury, R. (2021). How to sustainably build capacity in quality improvement within a healthcare organization: a deep-dive, focused qualitative analysis. *BMC Health Services Research, 21*(1), 1-13. https://doi.org/10.1186/s12913-021-06598-8

Kemper, A.R., Newman, T. B., Slaughter, J. L., Maisels, M. J., Watchko, J. F., Downs, S. M., Grout, R. W., Bundy, D. G., Stark A. R., Bogen, D. L., Holmes, A. V., Feldman-Winder, L. B., Bhutani, V. K., Brown, S. R., Maradiaga-Panayotti, G. M., Okechukwu, K., Rappo, P. D., & Russell, T. L. (2022). Clinical practice guideline revision: Management of hyperbilirubinemia in the newborn infant 35 weeks or more of gestation. *Pediatrics 150*(3), e2022058859. https://doi.org/10.1542/peds.2022-058859

Kuzniewicz, M. W., Park, J., Niki, H., Walsh, E., McCulloch C. E., & Newman, T. B.

(2021). Predicting the need for phototherapy after discharge. *Pediatrics*, *147*(5). https://doi.org/10.1542/peds.2020-019778

Leary, J. C., Walsh, K. E., Morin, R. A., Schainker, E. G., & Leyenaar, J. K. (2019). Quality and safety of pediatric inpatient care in community hospitals: A scoping review. *Journal of Hospital Medicine*, *14*(11), 694–703. https://doi.org/10.12788/jhm.3268

Lorch, S. A., Rogowski, J., Profit, J., & Phibbs, C. S. (2021). Access to risk-appropriate hospital care and disparities in neonatal outcomes in racial/ethnic groups and rural-urban populations. *Seminars in Perinatology, 45*(4). https://doi.org/10.1016/j.semperi.2021.151409

Masterson, K., & Brenner, M. (2016). Parents' communication preferences prior to the interhospital transfer of an acutely-ill child: A qualitative study. *Comprehensive Child and Adolescent Nursing, 39*(3), 215–220. https://doi.org/10.1080/24694193.2016.1186759

McEwen, M., & Wills, E. M. (2019). *Theoretical basis for nursing* (5th ed.) Wolters Kluwer Health.

Schutte, D., Kisting, M., Warren, C., & Stoneman, M. (2022). Linking hospitals to communities through evidence-based practice. *Clinical Nurse Specialist, 36*(5), 249–253. https://doi.org/10.1097/NUR.0000000000000695

So, V., & Khurshid, F. (2022). Treatment practices and implementation of guidelines for hyperbilirubinemia and rebound hyperbilirubinemia. *Journal of Neonatal–Perinatal Medicine, 15*(2), 335–343. https://doi.org/10.3233/NPM-210781

Speroni, K. G., McLaughlin, M. K., & Friesen, M. A. (2020). Use of evidence-based practice models and research findings in magnet-designated hospitals across the United States: National survey results. *Worldviews on Evidence-Based Nursing, 17*(2), 98–107. https://doi.org/10.1111/wvn.12428

Sunny, A. K., Gurung, R., Gurung, A., Basnet, O., & KC, A. (2020). Out of pocket expenditure for sick newborn care in referral hospitals of Nepal. *Maternal and Child Health Journal*, *24*(Suppl 1), 57–65. https://doi.org/10.1007/s10995-020-02881-y

Walden University. (2022). Social change. https://www.waldenu.edu-why-walden/social-change

Walden University. (2020). College of nursing practicum manual. https://academicguides.waldenu.edu/ld.php?content_id=62628400

White, K. M., Dudley-Brown, S., & Terharr, M. F. (2021). *Translation of evidence into nursing and health care practice* (3rd ed.) Springer.