Methods to Reduce Vaccine Errors

in Primary Care and Pediatric Clinical Setting

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Abstract

Vaccines are an important component to keep individuals healthy and prevent many serious and deadly diseases. Errors in vaccine administration can leave individuals inadequately protected. It was identified that there was a lack of education for new staff members concerning vaccine administration in the outpatient setting, which resulted in an increased number of vaccine errors. The purpose of this project was to develop a mentoring program to properly educate, and onboard new staff members who are administering vaccines in order to reduce the number of vaccine errors that are currently happening in the clinical setting. The goal of the project was to measure the impact education and mentoring has on the number of vaccine errors. The effectiveness of mentoring was evaluated utilizing the mentoring program evaluation form created by Marofsky and Johnston (2001). When comparing the number of vaccine error rates from three months before implementation of the mentoring program to the number of vaccine error rates three months after implementation of mentoring program. The number of vaccine errors significantly improved with education and mentoring, the rate of vaccine errors decreased nearly 72 percent. The feedback from the mentoring survey indicated that the program positively impacted the knowledge, performance, and confidence of the new employees. Therefore, mentoring and education is an effective tool to improve patient safety, as well as decrease the number of vaccine errors.

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Chapter I: Introduction

Immunizations are one of the greatest public health successes. Vaccines are an important component to keep individuals healthy and prevent many serious and deadly diseases. The World Health Organization (2019) stated that vaccines prevent approximately two to three million deaths each year. However, many children and adults are still at risk of acquiring vaccine-preventable diseases. These people are at risk due to various factors such as the individual was not offered the vaccine, they refused the vaccine due to misunderstandings, or there was an error in vaccine administration that undermined the protection immunizations provide, leaving individuals inadequately protected against serious diseases.

Background and Significance

Through the years, there have been significant advances in both immunization technology and greater knowledge about diseases that vaccines can prevent. Through this knowledge, many new vaccines have been created, and there have been changes to the existing vaccine schedule. Many parents trust healthcare professionals to explain the risk and the benefits of the vaccines and then to administer the correct vaccine at the appropriate time. To increase and standardize vaccine event reporting, the vaccine errors have been collected and reviewed by the Institute for Safe Medication Practices (ISMP) through the National Vaccine Errors Reporting Program (VERP). Immunization errors result from errors in vaccine preparation, handling, storage or administration. The most common types of vaccine errors reported included wrong vaccination, wrong dosage, expired/contaminated/deteriorated vaccination, wrong age to administer the vaccine, vaccine/component omission, wrong time/interval, wrong route, and wrong patient (ISMP, 2018).

ISMP estimates that errors occur in nearly 27-35% of all immunizations (2016). Data collected from September 2012- June 2016 revealed 1,754 vaccine errors (ISMP, 2016). One in three vaccine errors was associated with age-related factors (ISMP, 2016). However, many vaccine errors are often underreported as many healthcare workers may not know that a vaccine error has occurred, or they may fear reprimand from employers for administration errors. Peyrovi, Nikbakht Nasrabadi, and Valiee (2016) state there are four major barriers to nurses reporting errors that include nurses try to save their professional reputation and preventing stigmatism and; fear of consequences such as legal prosecution, punishment, and organizational misconduct; personal insecurities due to lack of support from coworkers and administration; and lack of investigation to find the root cause of error.

Vaccine errors continue to rise despite increased awareness. ISMP (2018) states that vaccine error rates in 2017 increased when compared to previous years. Nursing leaders have been asked to find a solution to this challenging situation. As the healthcare environment is rapidly changing and advancing, the education and support of healthcare providers also need to change to meet the needs of staff and to keep patients safe. Fleming (2017) reported that successful mentoring programs can help nurses to make confident, and well-informed decisions related to patient care, as well as increase job satisfaction, and build a long-term commitment to the advancement of the nursing profession. Mentoring and education can help develop knowledge, skills, and improve the comfort level of clinical staff members (Fleming, 2017). For mentoring programs to succeed and benefit mentees, it must be standardized and supported by the administration.

Significance to Nursing

The incidence of medication errors related to patient safety is a concern across the healthcare spectrum. Vaccine errors have the potential to weaken the effectiveness of vaccines and can leave the individual and the community unprotected against serious preventable diseases. Herd immunity is described as community protection from a condition after vaccination. Vaccination stops the organism accountable for the condition being transmitted between individuals. Herd immunity protects individuals who cannot be vaccinated by preventing exposure to the disease and increases the protection for the community. Vaccine errors can cause patients and families to question the vaccination program, which may increase the number of individuals who refuse future vaccinations and can decrease herd immunity, placing the community at risk for preventable diseases. Preventing vaccine errors is needed to reassure patients that vaccines are safe, and necessary to prevent disease.

The lack of proper orientation and mentoring of new staff members in the clinic can present many patient safety concerns such as increased medication errors. The lack of mentoring can also increase the turnover rate of clinical staff as new staff members feel anxious and overwhelmed. Kurnat-Thoma, Ganger, Peterson, and Channell (2017) found the cost for organizations to replace one full-time nurse to be $36,657. Identifying strategies to reduce turnover rates can increase organizational financial stability. Flinkman and Salanterä (2014) found that one of the top three reasons nurses wanted to leave the profession was due to the lack of support, orientation, and mentoring in the nursing field. Evidence has shown that implementing a successful nurse mentoring program can advance the nursing profession by creating confident, well-informed decisions pertaining to patient care, increase job satisfaction, and build long-term commitments to advancing the nursing profession. Mentoring programs also

benefit organizations by decreasing turnover, improving the quality of patient care, and creating

better patient outcomes (Fleming, 2017).

Needs Assessment

An analysis of the strengths, weaknesses, opportunities, and threats (SWOT) of the local

clinics within the community was completed. The assessment revealed that currently in Utah, the

largest healthcare organization has 23 hospitals and 180 clinics (Intermountain Healthcare, 2019

a). Each week there is at least one immunization error reported in Intermountain Healthcare.

Vaccine administration errors are preventable events that have the potential to reduce vaccine

effectiveness that can result in adverse patient health outcomes. The risk of vaccine errors can be

reduced through proper education and training of new staff members.

Strengths of this project include having administrative supportive, evidence-based

approach, and the organization has an event system in place to report and track vaccine errors.

Barriers to the implementation of a mentoring program include poor buy-in from current clinical

staff due to lack of support and on-boarding in the past. Other barriers include change burnout

within the organization due to recent realignment, lack of time, overwhelming workloads, and

lack of outpatient education about vaccine administration.

Problem Statement

Currently, at Intermountain Healthcare, there is not a standardized education program for

onboarding and training new staff members about vaccine administration. ISMP reported that in

2017 the number of vaccine errors increased nationally compared to prior years (ISMP, 2018).

As most vaccines are administered in the family practice (48%) or pediatric (27%) setting by a

medical assistant (54%), it is important to identify the number and type of errors that occur in the

clinic setting (ISMP, 2018). Once the number and type of errors are identified, strategies to

decrease or prevent the number of vaccine errors that are occurring in the clinic setting can be

prevented through mentoring and educating new staff members in the organization.

Project Aim

This project aimed to develop a mentoring program to properly educate and onboard new

staff members that administered vaccines to reduce the number of vaccine errors that occurred in

the clinical setting. The project identified primary care clinics and pediatric clinics who

administered vaccines within the central Utah area. The vaccine error rates were monitored for

three months before implementation and were compared to rates three months after

implementing a mentoring program.

PICOT Question

(P) For nursing staff in the clinical setting (I) how does having a mentor and requiring

mandatory vaccine education (C) compared to regular onboarding without a mentor and without

mandatory vaccine education (O) decrease the number of vaccine errors (T) over a three-month

period of time?

Aligning with Organizational Strategic Plan

The organization has implemented a Zero Harm program to improve patient safety by

applying best practices. One area that continues to be challenging is medication administration.

As part of the Zero Harm initiative, the organization has elected to review each medication

administration error to identify trends and prevent future incidents. In the investigation, the

employee is asked whether he or she had adequate training to complete the task at hand and if the

employee understood the policy and procedures in place to complete the task properly. Through

these investigations, many employees report the lack of support in their new roles. When the new

nurses ask for help from the experienced nurses, they state that the other nurses seemed to feel

rushed and do not have the time to spend on teaching new employees when the experienced nurses have full workloads themselves. Nurses need guidance and time to learn new and unfamiliar roles from mentors that are focused on the teaching and development of the mentee.

Search Process

A search of the literature was completed using EBSCO Host, CINAHL, Google Scholar, PubMed, Cochrane library, Health Source-Nursing/Academic Edition, and LexisNexis Academic. Keywords for searched included: vaccine error, clinical setting, medication administration, never event, immunization, primary care, mentoring, medication safety, novice nurse, transition, onboarding, vaccine education, and medication error. The keywords were used in various combinations to increase search results. The Bradley University Librarian was also able to obtain articles from interlibrary loans. A total of 325 articles were found. The search was limited to articles published in the last five years, English language, and full-text articles, which left 35 articles. Five of these articles were eliminated because they were duplicates, which left 30 articles for final review.

Synthesis of Evidence

A review of the literature has been summarized into the following categories: setting for vaccine errors, common vaccine errors, risk factors of medication errors, and effects of mentoring.

Setting for Vaccine Errors. ISMP (2018) national vaccine error reporting program stated that most vaccine errors occur in the outpatient setting with the most errors happening in family practice (48%) or pediatric (27%) setting. Most vaccine errors include medical assistants (54%). Of the vaccine errors reported, none of the errors caused immediate harm to the patient (ISMP, 2018). Rees et al., (2015) reviewed the number of safety incidents that occurred in the primary

care setting and found that 42.7% of incidents involved children. Of the 763 incidents that

involved children, 70.6 % were vaccine-related incidents (Rees et al., 2015).

      Common Vaccine Errors. Most common types of vaccine errors reported included:

wrong vaccination (23%), wrong dosage (19%), expired/contaminated/deteriorated vaccination

(19%), wrong age to administer vaccine (17%), vaccine/component omission (4%) wrong

time/interval (8%), wrong route (2%), and wrong patient (1%) (ISMP, 2018). ISMP report that

errors involving wrong age and wrong dose have not changed since 2012 (ISMP, 2018).

Contributing factors related to wrong age and dose error include failure to verify age before

vaccine administration, unfamiliarity of indicated age for the vaccine, age-dependent dosing of

the vaccine, and the unfamiliarity with dosing of vaccine (ISMP, 2018). Hoeve, Van Haren,

Sturkenboom, and Straus (2018) state that 27.2% of vaccine errors reported were outside the

recommended administration schedule. Rodgers et al. (2018) reviewed vaccines administered to

individuals under the age of 18 to determine the rate and cost of vaccinations administered

outside the recommended ages. They found that 0.3 % (9755/ 3,394,047) of vaccines were given

after the maximum age. The influenza vaccine was the most common vaccine given outside of

the age range and this required revaccination that cost $111,964 for 1344/194,934 individuals

(Rodgers et al., 2018). This study revealed that 0.1% (9542/3,394,047) of vaccines were given

before the minimum age recommendation. The most common vaccines that are administered

before the recommended age is quadrivalent influenza and Kinrix vaccine (Rodgers et al., 2018).

The cost to revaccinate individuals, where recommended, was $179,179 (Rodgers et al., 2018).

The most common vaccines that were administered outside the dosing schedule were human

papillomavirus (HPV) and pentavalent rotavirus (RV5). The second and third doses were given

before the recommended interval (Condon & Hayney, 2016).

Risk Factors of Medication Errors. There are several risk factors for the healthcare provider that contribute to medication errors such as: experience level, education, workload, and distraction. Asensi-Vicente, Jiménez-Ruiz, and Vizcaya-Moreno (2018), Hezaveh, Rafii, and Seyedfatemi (2013), and Sears, O'Brien-Pallas, Stevens, and Murphy (2016) discovered a relationship between the experience level and education of a nurse and the incidence of medication errors. Nurses with less experience and education have been found to have higher levels of medication errors. Aires et al. (2016) and Salami et al. (2018) found that workload significantly contributed to the occurrence of medication errors in nursing. Alomari, Wilson, Davidson, and Lewis (2015) and Connor et al. (2016) found that there are multiple factors affecting medication errors in pediatrics including communication breakdown between parents and healthcare professionals, nurse workload, not following organizational policies and guidelines, interruptions during medication administration process, lack of experience, and inadequate nurse education from organizations.

Effects of Mentoring. Mentoring is an important part of the transition from student to nurse. Mentoring has been shown to decrease medication error rates, increase self-confidence, enhance leadership skills, increase the culture of patient safety, reduce stress, decrease turnover rate, and improve patient outcomes. The rate of medication errors and nurse turnover can also be a financial concern for the organization. Hand and Thompson (2003) stated that mentors are needed to educate, teach skills, and ensure patient safety. A cross-sectional study of newly hired employees revealed that the orientation process for staff is often unknown (Thrasher & Walker, 2018). Latham, Hogan, and Ringl (2008) determined that mentors enhance the overall work environment, enhance mutual respect between nurses, and improve a culture of support. Mentoring, when successful, can improve the productivity of staff, advance career development,

decrease stress experienced, improve leadership skills and knowledge, and contribute to improvements in patient care (Hafsteinsdóttir, Zwaag, & Schuurmans, 2017) and (Lakhani, 2015). Snowdon, Hau, Leggat, and Taylor (2016) found that providing direct clinical supervision of medical professionals reduced the risk of complications and mortality of patients.

The strength of evidence includes the strong support and success of mentoring programs in several settings, with various clinical roles, and tools. Several studies showed that the implementation of a mentoring program positively impacted the nursing profession by assisting nurses to transition from student to caregiver, helped nurses to make well-informed decisions, improved professional development, and improves patient safety.

There is a limitation to these findings that include search methods utilized may not have included all available research as all databases were not available at the time the search was completed. The combination of key terms may have unintentionally led to the exclusion of pertinent studies or articles. Another limitation to the findings is that mentoring programs have limited research to determine how mentoring will impact the outpatient setting, specifically the primary care and pediatric clinics. However, mentoring has been extensively studied in the acute care setting that can be tailored and applied to both the primary care and pediatric settings.

Theoretical Framework

Patricia Benner's theory "From Novice to Expert" was established in 1980 as a model for the stages of clinical competence. Benner's theory includes five levels of experience that range from a novice nurse that is new to the work environment that will transition through the other stages and eventually reach the status of an expert nurse. This nursing theory proposes that nurses reach the expert nurse stage as they develop skills and an understanding of patient care over time through proper educational training and experiences.

The five stages include: 1) novice, the learner, has no experience in the task he or she is asked to perform, the learner begins to acquire experiences and understanding of basics tasks being performed; 2) advance beginner, has basic experience that allows him or her to think ahead and become proactive and includes critical analysis and intuition; 3) competent, nurses in this stage have gained advance planning and organization skills. They also are able to recognize patterns from past experiences and the nature of clinical situations sooner than advanced beginners; however, they lack the speed and flexibility of proficient nurses; 4) proficient, in this stage, nurses begin to see the patient as a whole person and not as separate pieces. Proficient nurses know what events typically occur and are able to develop a prioritized plan in response to events; and stage 5) The expert knows what needs to be accomplished and is able to recognize demands and resources in situations that can help accomplish his or her goals due to a profound knowledge and experience (Nursing Theory.org, 2016).

The guidance and support from a mentor who has achieved the level of expert and has an abundance of experience and expertise can help the novice nurse advance through the levels of skill successfully. Improving the mentoring process will improve patient safety, job satisfaction, and nurse retention. As onboarding of novice nurse improves and the new nurses are supported and guided through the levels of experience, the number of immunization errors will be reduced.

Chapter II: Methodology

Project Design

   This project is a quality improvement project. The following project utilized the quality

improvement design of focus, analyze, develop, execute, and evaluate (FADE) methodology.

Focus. The focus of this DNP project was to decrease the number of immunization errors in the clinical setting by developing a mentoring program to properly onboard and educate new employees administering vaccines. New clinical staff members reported they are not comfortable administering vaccines due to the lack of education and support during onboarding and transition into their new role.

Analyze. Immunization errors were tracked and reviewed with nurses as they occurred to identify educational and onboarding mentor needs. Unsuccessful onboarding and lack of mentoring has caused an increase vaccine error rate, increased clinical staff turnover rates, reduced confidence, resulted in feelings of inadequacy, and poor patient outcomes.

Develop. The project lead developed a mentoring program where new clinical staff members were oriented and trained with an experienced nurse that served as a clinical mentor. The mentor served as a resource for the new clinical staff member and provided proper education about vaccine administration.

Execute. This mentoring program was based on current evidence and Benner's Novice to Expert nursing theory, which provided support and guidance during the onboarding process. This program was selected to be implemented in primary care and pediatric clinics in the Timpanogos area that administers vaccines. The mentoring program was completed over twelve weeks, which included educating key stakeholders, an observational period, data collection period, and analysis of results.

Evaluate. Evaluation of the mentoring program was accomplished by holding frequent collaboration meetings with stakeholders to identify barriers and effectiveness of the mentoring program. It was expected that the mentoring program would decrease the error rate of vaccine administration errors, improve employee confidence, and increase retention of new clinical staff.

Setting

The project was implemented in the Timpanogos region located in central, Utah. The project included primary care clinics and pediatric clinics that administered vaccines. The Timpanogos region encompassed four counties in Utah, had 23 clinics, and included 78 providers that worked in a primary care or pediatric setting. These clinics were selected for this project due to the high volume of vaccines administered at these locations and the high clinical staff turnover rate.

Population/Sample

There were approximately 157 patient encounters per provider each month in this area. According to the clinic's demographic report, 55% of these patients were female, 45% of these patients were male, 70% of patients were Caucasian, 20% were Hispanic, and 10 % of the patient population includes other races such as African Americans, Asian, and Pacific Islanders (Intermountain Healthcare, 2019b). The top two patient languages spoken were English and Spanish (Intermountain Healthcare, 2019b). All ages groups who received recommended vaccinations in the identified clinics were included in this project.

The target population for this mentoring program was the clinical staff working in a primary care or pediatric clinic in the Timpanogos region. The clinic manager, regional nurse administrator, and registered nurse coordinator selected an appropriate mentor for each clinic. The mentors selected were experienced, had excellent communications skills, showed competence in active listening skills, were able to provide positive and constructive feedback, had previous experience and knowledge with vaccine administration, and possessed a thorough understanding of policies and procedures implemented in the clinic with regards to vaccine administration. The mentors had a minimum of one-year experience in the ambulatory clinical

setting to be considered for the mentoring role. New clinical staff members that were hired

during the implementation of this project were assigned to the mentor in their clinic.

Tools and Instruments

      Orientation Checklist. All new clinical staff members were required to complete an

orientation checklist developed by the team project leader (Appendix A). This orientation

checklist provided a structured onboarding experience with necessary education about safe

practices, policies, and procedures in the clinic setting. The orientation checklist helped reduce

the novice clinical staff member's anxiety and increased safety by ensuring adequate training and

education were provided to the new hire. The completed orientation checklist was kept in the

employee's file.

      You Call the Shots. All new clinical staff members who administered vaccines were

required to complete the "You Call the Shots" training before they could administer vaccines in

the clinic. You Call the Shots is an immunization training program provided by the Center for

Disease Control and Prevention (CDC). This program is an interactive and web-based training. It

includes a series of modules that review vaccine-preventable diseases and explain the latest

recommendations on vaccine use. Every module provided educational opportunities, resource

materials, references, glossary, and it also provided the student with practice questions to verify

the individual's understanding (CDC, 2019). Each employee printed a certificate upon

completion to keep in his or her employee file.

      Mentoring Program Evaluation. The mentoring program evaluation form was created

by Marofsky and Johnston (2001) and was used to evaluate the effectiveness of the mentoring

program (Appendix B). The mentoring program evaluation form was a Likert survey that

consists of a scale from one to five. One indicates that the individual strongly disagreed with the

statement, and five indicates the individual strongly agreed with the statement. The survey

included 29 questions related to the mentoring program, mentor/mentee relationship, and the

benefits of a mentoring program. The survey also included nine narrative questions that reviewed

the strengths, weaknesses, and recommendations related to the mentoring relationship and

mentoring program. The narrative responses were provided to administration to develop and

advance the mentoring program.

Intermountain Event Reporting System. During the first week of implementation, the

mentees completed a skill "pass off" to verify the users understood how to complete an event

report and when to create a report (Appendix C). Users were instructed on how to complete a

report with each vaccine error that includes wrong vaccination, wrong dosage,

expired/contaminated/deteriorated vaccination, wrong age to administer the vaccine,

vaccine/component omission, wrong time/interval, wrong route, and wrong patient. The

Intermountain event system was utilized to track the number of vaccine errors that occurred in

the identified clinics.

Project Plan

The goal for this project was to evaluate the effectiveness of implementing a mentoring

program to reduce the number of vaccine errors in the primary care and pediatric clinical setting.

Before implementation of the mentoring program, the clinic manager, regional nurse

administrator, and registered nurse coordinator selected an appropriate mentor for each clinic

site. All stakeholders met one week before project implementation to review the purpose and

goals of this project, required documentation, expectations, and tracking of immunization errors

through the Intermountain event reporting system.

Each employee who accepted the mentoring role attended an orientation course created by the organization on how to be a successful mentor. This course was completed during week one of the project implementation. The mentoring class allowed users to familiarize themselves with the tools used in this project. During week one, the initial data was collected pertaining to the number and type of vaccine errors that occurred three months prior to implementation of mentoring program. The project lead met with all mentors to discuss a weekly evaluation and to answer any remaining questions before the mentors met with their mentees.

The manager of the clinic introduced the mentor to the mentee during week two of implementation. The clinic manager assessed the professional communication and interaction between the two individuals on a routine basis. All concerns were reported to the project lead. All mentees completed a skill pass off during week two to verify they could understand and use the Intermountain event reporting system necessary to track vaccine errors. All mentees completed the "You Call the Shots" training provided by the CDC by the end of week two and before administration of vaccines. The skill pass off and course certificate was placed in the employee's education file. Each week the project lead met with key stakeholders to review goals, the effectiveness of mentoring, address any issues or barriers that may have occurred with mentoring, identify accomplishments and areas for improvement.

During weeks three through five, the mentor and mentee completed the orientation checklist. The orientation checklist was completed within 30 days of hire or transfer to the new unit. The completed checklist was placed in the employee's education file by the end of week five.

As the mentee reached week six, the goal was for the mentee to be working independently and utilizing the mentor as a resource. The mentor was available for questions but

was not required to remain one on one with the mentee. Weekly meetings between the project

lead and stakeholders continued in order to review the effectiveness of mentoring, address any

issues or barriers that may have occurred with the mentee beginning to work independently,

acknowledge accomplishments of both mentor and mentee, and identify any areas for

improvement with the mentoring project.

The mentoring program was completed at the end of week ten. The mentoring program

evaluation tool was given to participants. Participants were instructed to complete the assessment

and return completed form in an enclosed self-addressed stamped envelope. The project lead

collected the completed surveys and analyzed the data during weeks 11-12. The final number of

vaccine errors reported during implementation was obtained and reviewed during week 12.

Evaluation of the mentoring program occurred weekly and then at the completion of the

mentoring program. Immunization errors that happened during the implementation of this project

were reviewed with the nurse who administered the vaccine, the manager, and the project lead to

review how the error occurred and how the event could have been prevented.

Data Analysis

The project lead collected data on the number and type of vaccine errors that occurred in

the primary care and pediatric clinic setting. Immunization errors were assessed two times

during this project. The first assessment that took place was a retrospective analysis of vaccine

errors that took place during October 2018 to December 2018. The second assessment took place

from October 2019 to December 2019, after the completion of the mentoring program. Data

collected from the Intermountain event reporting system was deidentified and tracked by the

project leader on an excel spreadsheet that was stored on a secured device and password

protected. The number of immunization errors and the type of vaccine errors were reviewed and presented to stakeholders. Upon completion of the mentoring program, the mentoring program evaluations forms were collected and analyzed using descriptive statistics and quantitative methods.

Institutional Review Board and Ethical Issues

The Institutional Review Board (IRB) application was submitted and approved through both Intermountain Healthcare's IRB department and Bradley University's IRB department. This project was considered a minimal risk project. No ethical concerns were identified, as this project did not involve direct patient care. There were no concerns regarding patients' rights, patient welfare, informed consent, or confidentiality. This quality improvement project did not track patient health information for this project. The only data collected was the type and number of immunization error that occurred, and a Likert survey to measure mentoring effectiveness. Data collected was tracked by the project leader on an excel spreadsheet that was stored on a secured device and password protected. Participants did not receive additional financial compensation for participation in this project. A certificate was provided to employees who completed the mentoring program. The participants were reassured that the outcome of the mentoring program would not affect their employment status, and the information collected was kept confidential.

Chapter III: Organizational Assessment and Cost Effectiveness Analysis

Organizational Assessment

Readiness for change. Prior to the implementation of this project the organizational assessment indicated the facility was ready for change. Intermountain Healthcare is a growing organization in Utah. New leaders in the organization are focused on methods to improve care in the outpatient setting. As health care costs continue to rise, Intermountain Healthcare is trying to reduce costs by improving medical care. Improving care that is provided in the outpatient setting can minimize medical complications and improve patient outcomes and overall health. Vaccine errors within the organization continue to rise, and nursing leaders were asked to find a solution to this challenging situation. There is a pharmacy team that is engaged in reducing vaccine errors. This group has focused their attention on medication scanning to reduce vaccine errors. However, there is an educational need identified in the outpatient setting. New clinical staff lack education on vaccine administration. Providing training and mentoring will ensure new staff members have the necessary knowledge to administer vaccines safely and effectively.

Role of interprofessional collaboration. Interprofessional collaboration was imperative to the success of the mentoring program. Assessment of the organization prior to implementation of the mentoring program revealed that developing a mentoring program would require collaboration between clinic managers, mentors, mentees, the project lead, and regional administration to be successful. Mentoring can have a positive impact on the outpatient setting by improving employee knowledge, retention, engagement, and by creating a culture of patient safety within the organization. Participants would need to be competent and collaborative team members. Participants would need learn skills to successfully communicate with physicians and

other members of the healthcare team. However, mentoring programs have to the potential to fail if there is not buy-in from organizational leadership and proper follow through.

Barriers and facilitators to implementation. A potential barrier identified prior to the implementation of this project was burnout from frequent changes. Over the last two years, this organization has experienced significant changes, including organizational restructuring and implementation of a new electronic health record. Organizational change often places strain on employees that can cause stress and resistance to change when implementing new projects. To overcome this barrier team members assessed the engagement and potential change burnout throughout the project.

Facilitators identified prior to implementation of this project was the proven success of mentoring programs. Another facilitator is that leaders within the organization are held accountable for the number of vaccine errors that occur and for the retention of clinical staff members. Leaders were supportive of this project to improve vaccine error rates, decrease staff turnover, and decrease costs with the region.

Cost Factors

Budgetary needs. Budgetary needs for this program can be found in appendix D. Each

mentor was required to attend a one-hour course to learn how to be a successful mentor.

Intermountain healthcare currently had a mentoring program developed that was utilized for this

project. Costs related to the mentoring course were related to the mentor's hourly wage. The

average wage for medical assistant is $16.61 an hour (Bureau of Labor Statistics, 2019). There

was a total of 22 mentors who participated in this project, for a total cost of $365.42. Each clinic

site covered the cost of this required training. Training was completed during regular working

hours.

"You Call the Shots" training is a free online course provided by the CDC. Each

participant in the project was required to complete the two-hour course. Expenses included

hourly wages; the cost is approximately $33.22 per medical assistant participating in the

program. There was a total of eight mentees for a total of $265.76. Each clinic site covered the

cost of this required training that was completed during regular working hours. Additional costs

related to printing the orientation checklist and mentoring program evaluation was provided by

the organization. There was no cost identified related to equipment, information technology, and

databases.

Cost avoidance or savings associated with implementation. To train a new medical

assistant who on average makes $16.61 an hour is approximately $7,972.80 for twelve weeks,

not including benefits. Currently, the Timpanogos region had a turnover rate of approximately

eight medical assistants every month. The total cost to train eight medical assistants is

$63,782.40. Retaining the medical assistants who have completed the mentoring program can

save the organization approximately $765,388.80 each year.

The cost of vaccines can range from $10.85 up to $227.93 (CDC, 2020). As the organization is experiencing approximately one vaccine error each week, there is the potential to save an additional $130.20 to $2,735.16 in vaccine costs as the correct vaccine would need to be re-administered if an error occurred.

Chapter IV: Results

Analysis of Implementation Process

The implementation of the mentoring program was successful in the primary care and pediatric outpatient setting. There was exceptional support from administration, clinic leadership, mentors, and mentees in the outpatient setting as the project aligned with the organization's goals. Project expectations and tools were explained to the key stakeholders prior to project implementation. No barriers or resistance to initiating the mentoring program was noted during the implementation process. Mentors were trained using the organization mentoring program. During mentor training, all four tools for this project were reviewed and questions answered.

The mentoring program was implemented from October 1, 2019 to December 31, 2019. There was a total of five mentors and eight mentees that participated in the program over these three months. All eight mentees were new hires; there were no transfers between facilities. Human resources sent a list of new hires every two weeks to project lead. If a new medical assistant was starting in any of the identified clinics, the mentor was notified of the mentee's start date. The project lead assigned the CDC "You Call the Shots" training. The clinic mentor ensured the orientation checklist, iReport documentation, online "You Call the Shots" training was completed timely. No issues were reported with project tools. Due to the large number of clinics included in the study and distance between clinics that involved four counties, weekly check-ins were completed by email with key stakeholders.

Immunization errors that happened during the implementation of this project were reviewed with the nurse who administered the vaccine, the manager, and the project lead to determine how the error occurred and how the event could have been prevented. There was a

total of four vaccine errors that were reviewed after the implementation of the mentoring program.

One of the twenty-three clinics experienced significant nurse turnover during the implementation of this project. The lead medical assistant on the unit was accepted into a registered nurse program and requested a transfer to the float pool, which was able to make more accommodation to her nursing school schedule. This transfer resulted in one medical assistant with approximately five weeks of training and another medical assistant with one week of training in the pediatric unit. Arrangements were made to have a mentor from the family practice unit work with the pediatric team during the transition. No other staffing issues were reported during the implementation of this project.

Analysis of Project Outcome Data

A retrospective chart review of vaccine errors was completed on charts from October 1, 2018, to December 31, 2018, prior to the implementation of the mentoring program. This chart review noted a total of 14 vaccine errors. Vaccine errors were then tracked from October 1, 2019, to December 31, 2019. After implementation of the mentoring program, there were four vaccine errors. The total number of vaccines administered, or the percentages of vaccine involved in vaccine errors during this timeframe were not tracked.

Chapter V: Discussion

Findings

The goal of this project was to develop a mentoring program that adequately educated and onboarded new staff members who administer vaccines to reduce the number of vaccine errors that occurred in the outpatient clinical setting. A retrospective chart review of vaccine errors was completed. During this timeframe, there were fourteen vaccine errors reported including four incorrect vaccines, four wrong doses, one incorrect route, two wrong time/interval, one incorrect component, one expired vaccine, and one wrong patient. After project implementation, there were a total of four vaccine errors that included a wrong medication where Prevnar 23 ordered and Prevnar 13 was administered, a vaccine component omission error where the medical assistant only administered the diluent from the Shingrix vaccine, a wrong vaccine for age where Infantrix was indicated and Kinrix was administered, and an influenza vaccine was administered that was expired. This is an almost 72 % decrease in the number of vaccine errors. This indicated that developing a mentoring program to educate and onboard new clinical staff is an effective tool to decrease vaccine errors. Further evaluation noted that all four vaccine error incidences did not involve new employees that were hired within 90 days. This evaluation identified the need to train all clinical caregivers who are administering vaccines in the outpatient setting.

The mentoring program evaluation form is an important component of the project as it provides an analysis of how mentors and mentees determined the value and effectiveness of the mentoring program. The mentoring program evaluation form was a Likert survey that consists of 29 questions and used a scale from one to five. One indicates the individual strongly disagrees with the statement, and five indicates that the individual strongly agrees with the statement. The

survey had both the mentor and the mentees evaluate the mentoring program, mentor/mentee

relationship, and the benefits of a mentoring program. The survey also included nine narrative

questions that review the strengths, weaknesses, and recommendations related to the mentoring

relationship and mentoring program. There was a total of thirteen surveys that were given out to

the five mentors, and eight mentees. Eleven surveys were returned completed, five from the

mentors and six from the mentees. The responses were very positive about the mentoring

program. There were ten questions related to the mentoring program; the average score for this

section is 4.6/5 or 92%. There were fourteen questions related to the mentor/mentee relationship;

the average for this section is 4.4/5 or 88.5%. The last section was related to the benefits and

learnings related to mentoring; the average for this section was 4.6/5 or 92%.

Participants identified the greatest benefits of this program included ensured novice

nurses had information and training needed to administer vaccines, program had clearly

identified roles, opportunity opened up conversations for improvement of the vaccine

administration process, identified resources in the clinic for new caregivers, and that the training

provided 1:1 education for mentee with an experienced individual who had knowledge about the

vaccine administration process.

Challenges related to the program included that it was difficult for clinical staff to retain

the large volume of detailed information acquired during the onboarding process. Several

mentors also had multiple responsibilities in the clinic that often pulled them away from the

mentee. Lastly, many of the new hires struggled learning how to use the electronic medical

record to documentation vaccine administrations. Staff members recommended a vaccine

administration reference sheets to help new hires, a standardized double-check process to prevent

vaccine errors, and regular meetings to address changes in vaccine processes and to address any misconceptions that new hires may have developed.

Limitations

Several limitations were encountered during the implementation of this project. The first limitation would be the length of time vaccine errors were tracked. Limiting the timeframe to three months could have impacted the statistical significance of the outcomes. Monitoring vaccine error rates over an extended timeframe may increase the significance of the findings.

Another limitation of this project was the small sample size of new hires. The region usually has approximately eight new hires each month. Before the implementation of this project, there was significant staff turnover. This project only had eight new hires over three months. Extending the project over a longer period of time could have adjusted the variation in turnover rates of new employees and included more participants.

Lastly, the reliability and validity of the survey tool is unknown. The mentoring program evaluation form was created by Marofsky and Johnston. However, there are no studies to validate the use of this form in developing a mentoring program.

Implications

Preventing vaccine errors is needed to restore confidence to patients and their families that vaccines are safe and necessary to prevent disease. The findings of this project suggest that the use of mentoring to properly educate and onboard new clinical staff does help reduce vaccine errors in primary care and pediatric outpatient settings. Although there were several limitations, the data did show a significant reduction in the number of vaccine errors indicating that mentoring is an effective tool to reduce vaccine error rates.

Mentors in this project supported and encouraged the transition of nurses on the unit to promote best practices, encourage critical thinking, provide hands-on training with vaccine administration, and they educated the mentees about policies and procedures in place to prevent vaccine errors. Creating a mentoring program promoted an environment focused on patient safety and improving the quality of patient care. Mentoring advanced the nursing practice by creating professional relationships within the clinics that helped caregivers to make well-informed decisions pertaining to patient care that resulted in safe, high-quality care that reduced vaccine errors and improved patient outcomes.

Additional guidance may address the need to extended education and training to all caregivers in the outpatient setting to ensure each caregiver has a basic understanding of vaccine-preventable diseases and proper vaccine administration. Future research could be useful to determine the length of experience a caregiver has in correlation to the incidence of vaccine errors that are occurring in primary care and pediatric clinics. This research may help identify education gaps in vaccine administration procedures. Other future research could include reviewing the effects of mentoring over an extended period of time with more participants to identify additional barriers to decreasing the number of vaccine errors in primary care and pediatric clinics.

Chapter VI: Conclusion

Value of the project

The purpose of the mentoring program was to provide additional support and education to novice nurses who are administering vaccines in the outpatient primary care and pediatric setting. This project did show that implementing a mentoring program to properly educate and onboard new staff members who administer vaccines in primary care or pediatric clinics is an effective tool to reduce the number of vaccine errors. At the conclusion of this project, the general feedback from participants, in person, and from surveys was that both mentors and mentees found the education and training helpful. It was stated that the education provided to them gave them the tools necessary to administer vaccines safely and efficiently.

Providing a standardized onboarding process and education has been very valuable to the organization. The mentoring program decreased medication error rates, improved self-confidence of new clinical staff, enhanced leadership skills of the senior nurses, and created an environment focused on patient safety, decreased stress of clinical staff, and improved patient outcomes. The nursing administration decided to continue with standardizing onboarding of clinical staff utilizing the checklist and have added "You Call the Shots" training for clinical caregivers who administer vaccines in the outpatient setting. Sustainability of the mentoring program is under review to determine which individual in the clinic would be best suited to mentor new clinical staff.

This project holds great significance to the nursing profession as mentoring can create more experienced nurses and improve the quality and safety of care. Mentoring can also promote leadership skills in senior nurses who can create an environment focused on helping the novice nurse transition from student to experienced nurses. As the environment promotes safe learning

opportunities for nurses, this will create trust among team members, which can reduce stress and anxiety and also improve job satisfaction.

DNP Essentials

The American Association of Colleges of Nursing (AACN) (2006) lists eight foundational competencies that a DNP prepared nurse practitioner must possess as an advanced practice nurse. The implementation of this project has contributed to the achievement of multiple DNP essentials. *DNP Essential I: Scientific Underpinning for Practice* a nurse must be able to obtain new knowledge and translate that knowledge into practice (AACN, 2006). Having a solid foundation of nursing theory can advance nursing practice and help nurses utilize science-based concepts to evaluate and improve patient outcomes. This DNP Essential was demonstrated by utilizing Benner's Novice to Expert model as a framework for this project.

Essential II: Organizational and Systems leadership for Quality Improvement and Systems Thinking is vital for the DNP graduate to improve patient and healthcare outcomes (AACN, 2006). By evaluating, translating, and distributing research into practice, patient care and outcomes can improve. This project created onboarding processes and education based on research to improve healthcare. Working closely with organizational leadership helped implement best practice guidelines to decrease vaccine error rates.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice states that the DNP graduate must be able to use scientific research and knowledge to improve patient outcomes by turning knowledge into practice (AACN, 2006). The mentoring program was developed based on research and best practices to reduce vaccine administration errors. Knowing how to utilize evidence-based information was a vital component of this project.

Essential IV: Information Systems/Technology and Patient Care Technology

for the Improvement and Transformation of Health Care technology has been essential to track

and obtain the data necessary for this project. This essential was met by using a computerized

event reporting system to measure the success of the project through tracking number and type of

vaccine error that occurred.

Essential VI: Interprofessional Collaboration for Improving Patient and Population

Health Outcomes has impacted this project significantly. In healthcare, it is important to

collaborate with other members of the health care team to improve communication and provide

better patient care. Improving communication skills is a vital component of becoming an

advance practice nurse. Collaboration identified many clinical issues and educational needs

within the outpatient setting. This project has led to many discussions on how to implement

appropriate changes within the organization to improve onboarding staff and ensure they receive

the necessary education and training they require to provide safe and efficient care.

Plan for Dissemination

The information presented in this scholarly project will be disseminated in multiple ways.

Information will be presented to the DNP project team during an oral presentation utilizing a

PowerPoint presentation. This presentation will take place at a time scheduled through Bradley

University, utilizing the university's website. A separate presentation will be provided to

organizational leaders and key stakeholders to review the project and final results. Finally, the

project will also be submitted to the DNP repository that is accessible to practicing APRNs and

APRN students.

Attainment of personal and professional goals

Through the completion of this project, I was able to accomplish both personal and

professional goals. I reached my professional goal by identifying methods to decrease vaccine

errors across a large region. This project helped me to develop my research skills by completing

a search of literature to identify evidence-based practices that can improve patient care and

outcomes. Professionally, I have had the opportunity to work with various leaders and have

learned how to communicate effectively and collaborate with professionals from various

backgrounds. Through this process, I have gained leadership experience by bringing awareness

to issues within the practice that need to be addressed. This project has pushed me to lead

discussions on how to implement appropriate changes in healthcare in order to improve patient

care.

The personal goal I achieved through the completion of this project was to create

relationships with a variety of people both within the organization and community. I feel I have

gained many professional colleagues that possess similar interests. Lastly, I have reached my

main personal and academic goal, which was to obtain my DNP degree, which this project

helped me accomplish.

<div align="center">

Conclusion

</div>

Vaccine errors are an ongoing issue that has the potential to undermine the protection

immunizations are supposed to provide, leaving individuals inadequately protected against

serious diseases. Vaccine errors affect not only the individual but communities as well. A

significant barrier to preventing vaccine errors is proper education and onboarding. The question

asked by this project was if developing a mentoring program to onboard and educate nurses in

primary care and pediatric settings is an effective way to reduce vaccine errors? The results of

the project showed that guidance and support mentoring and education provided about vaccine administration is an excellent tool to decrease the number of vaccine errors, as this project had a 72 % decrease in the number of vaccine errors after implementation of a mentoring program. The mentoring program also improved co-worker relationships, patient safety, the confidence of new employees, job satisfaction, and identified resources available in the outpatient setting.

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Appendix A:

Orientation Checklist Medical Assistant (MA)

Name: _____ Employee Number: _____

Date of Hire/Date Orientation Completed: _____/_____

This checklist will be completed with multiple team members: the clinic manager, MA/RN coordinator, MA Mentor (MA coach in clinic), and a lab representative in the clinic. This needs to be completed within 30 days after hire. It should be individualized to fit the clinic/area the MA will be working in. Please add any additional training, equipment, etc. as needed.

The clinic manager and clinical coordinator will meet with each new employee at specific intervals to review orientation progress. These will be held around 30, 60, and 90 days after hire.

Instructions for Clinic Manager
1. Complete New Employee Orientation checklist.
2. Help employee sign up for 2nd Day Orientation (4284), ICentra Training (137773), and Zero Harm (4736). Zero Harm should be done no sooner than 30 days and no longer than 90 days after hire.
3. Contact your clinic's lab consultant (Robert Holloway, Trevor Rhoads, Kristi Florence, or Ray Trimble) and provide them with the new employee's name and employee number.
4. Set up clinic orientation schedule with MA preceptor.
5. Communicate orientation schedule with RN/MA coordinator.

Instructions for MA Preceptor
1. Review fundamental principles, office specific processes and location of pertinent reference materials.
2. **By signing your name, you indicate that you have completed the review and the orienting MA demonstrates understanding.**
3. If an item is not applicable in the area, mark "N/A" in the Preceptor Name box.

Employee Training Dates

Training	Date
2nd Day orientation	
ICentra- EMR training	
Zero harm-Patient safety training	
You Call the Shots (CDC vaccine training)	

Clinic Manager

Performance Expectation	Clinic Manager Name	Date Completed
Current BLS card sent to MGEducation.imail.org		
Telephone etiquette		
Communication in the work place (Skype, email, phone, team space)		
Interpreter services-contracted agencies, iPad		

MA/RN Coordinator

Performance Expectation	MA/RN Coordinator Name	Date Completed
Location of policies/procedures/guidelines, educational resources on Intermountain.net		
Emergency response in clinic		
Never events		
Two patient identifiers https://m.intermountain.net/policy/Pages/detail.aspx?docid=050370		
Specimen labeling https://m.intermountain.net/policy/Pages/detail.aspx?docid=051724		
Medication administration 1) https://m.intermountain.net/policy/Pages/detail.aspx?docid=050472 2) https://m.intermountain.net/knowledge/wiki-sites/icentra/ambulatoryclinicalstaff/pages/protocol-medication-ordering-and-scanning.aspx		
Time-outs https://m.intermountain.net/policy/Pages/detail.aspx?docid=050364		
Informed consent https://m.intermountain.net/policy/Pages/detail.aspx?docid=050626		
Equipment		
Ambu bags		
Pocket mask		
AED		
BP machine		
AOBP machine		
Thermometer		
Pulse oximeter		
Scales		
Wheelchairs		
Safety needles		

Performance Expectation	MA/RN Coordinator Name	Date Completed
Infection Control		
Instrument cleaning and sterilization- autoclaving process https://m.intermountain.net/policy/Pages/detail.aspx?docid=050572		
Universal precautions and blood borne pathogens		
Hand washing		
Turning over rooms		
Contact vs airborne vs droplet precautions		
Contaminated linen		
Legal Considerations		
iReports		
Patients leaving against medical advice		
Reporting abuse of vulnerable populations		
Treatment of minors		
Release of information (ROI)		
Documentation-if you didn't chart it, it wasn't done!		
Handling irrational, aggressive, or suicidal patients		
MA scope of practice		
In-Services (required for new skills prior to performing in the clinic)		
Medications		
Controlled substances (policies, procedures, administration record, daily counts)		
Hazardous medication		
Receiving medication		
Ordering, storing, and monitoring medications		
Diversion of medication through theft or prescription forgery (policy and procedure)		
Vaccine administration		

Clinic Mentor

Performance Expectation	MA Preceptor Name	Date Completed
Help employee set up their screens to match clinic workflow		
Intake process-what fields are specific to clinic, evaluation of pain, mental health screenings, etc.		
Review red flags, including any that are clinic-specific		
Messages-how to access and chart in a timely manner		

Prescription requests/refills		
Independent double check medications		
Properly disposing of waste-show biohazard bins, sharps containers, medication waste bins		
Referrals		
Pre-Authorizations		
Vaccines for Children (VFC)		
Logs and Maintenance		
AED-daily		
Refrigerator temperatures-daily, AM and PM		
Autoclave maintenance-daily, weekly, monthly		
Room temperatures and humidity -daily		
Eye wash station-weekly		
Supply and medication outdates-weekly		
QC and proper storage		
Supplies		
Ordering		
Maintaining supplies		
Clinic-Specific Expectations/Skills		
Visual acuity testing		
Performing an ECG		
Suction		
Hyfrecator/Bovie		

Skills Pass-offs to be Completed During 2nd Day Orientation

Performance Expectation	MA/RN Coordinator Name	Date Completed
High alert medications-double check		
Aseptic technique		
EpiPen		
Elephant ear		
iReport documentation		

Skills Pass-offs to be Completed in Clinic

Performance Expectation	MA/RN Coordinator Name	Date Completed
Blood pressure		
Oxygen-check location, key, tubing		
Gait belts		
PPE		
N95/PAPR		

3 injections-to be completed with mentor		

Lab Representative

Performance Expectation	Lab Representative	Date Completed
1. MyLearning modules	To be completed online by employee	
2. Training worksheets: complete these with the clinic lab lead		
3. Observations: new employee must pass off a specific number of tests while being observed by the lab representative (using the lab pass-off sheet). The pass-offs can be controls. All of these will be done by the new employee but under the ID of the lab representative. The trainer entering their ID into the machine is certifying that they have observed, and it has been done properly.		
4. After 1-3 have been completed, the clinic lab lead will submit forms to lab consultant. Once received and processed, the new employee will receive their own user ID.		

Appendix B

Date:

Please check one: I am a __ Mentor __ Protege/Mentee.

Instructions
1. Please answer all questions using a scale of 1 – 5.
   1- Strongly Disagree
   2- Disagree
   3- Not Sure
   4- Agree
   5- Strongly Agree
2. Circle the number in the columns provided.
3. In the Narrative Questions section, please write in a response.
4. In order to help make the program stronger, please be as candid as possible.

The Program

1. The goals and objectives of the program were clearly defined.	1 2 3 4 5
2. I felt supported in this mentoring program from my manager.	1 2 3 4 5
3. The structure of the program made it easy to perform my role in this relationship.	1 2 3 4 5
4. The program requirements were just right.	1 2 3 4 5
5. The time commitment for each interaction was just right.	1 2 3 4 5
6. The match between my mentoring partner and I worked.	1 2 3 4 5
7. I believe the program will benefit the organization.	1 2 3 4 5
8. I felt supported by the program administrator.	1 2 3 4 5
9. The overall expected outcomes for the program were realistic.	1 2 3 4 5
10. The program worked for me.	1 2 3 4 5

The Relationship

1. The match between my mentoring partner and I met my needs.	1 2 3 4 5
2. We have met regularly.	1 2 3 4 5
3. We came prepared to use the time effectively.	1 2 3 4 5
4. We were confident about what to do when we started.	1 2 3 4 5
5. My mentor understood what I was saying.	1 2 3 4 5
6. My protege/mentee understood what I was saying.	1 2 3 4 5
7. I experienced learning and growth during the process.	1 2 3 4 5

8. We were open and honest with each other.   1 2 3 4 5

9. We had meaningful conversations.   1 2 3 4 5

10. My mentor offered guidance and knowledge.   1 2 3 4 5

11. My mentor could be called a "developer of people."   1 2 3 4 5

12. My protege/mentee shared concerns and asked good   1 2 3 4 5
    questions.

13. My protege/mentee enlightened me.   1 2 3 4 5

14. This relationship will continue beyond the formal process. 1 2 3 4 5

Benefits and Learnings

1. As a result of this mentoring relationship:

    I have grown.   1 2 3 4 5

    I feel better about my career.   1 2 3 4 5

    I feel more concerned about my career.   1 2 3 4 5

    I feel more a part of the organization.   1 2 3 4 5

    I feel it was worth my time and effort.   1 2 3 4 5

2. The rules for success, both unwritten and written, were   1 2 3 4 5
   explored and considered.

3. Developmental areas were defined and   1 2 3 4 5
   recommendations made.

4. This experience increased my effectiveness.   1 2 3 4 5

Narrative Questions

What has been the greatest benefit you received from this experience?

What were the greatest challenges?

What conversations still need to take place?

Please provide specifics about the mentoring relationship:

Strengths of the relationship–

Weaknesses –

Recommendations –

Please provide specifics about the program:

Strengths –

Weaknesses –

Do you have any recommendations that might improve the program?

Appendix C

Intermountain Healthcare

Skill / All Employees

Employee Name: _____   Employee ID#: _____   Position: _____   Department/Facility: _____

Skill / Skill Set: __iReport_Documentation__   LMS Course # __3410__   Pass Off initiated (mm/dd/yyyy): _____

Instructions:

1. Review the supporting documents and other assigned materials.
2. Take the pass-off to the skill instructor for evaluation and sign off.
3. Upon completion of the sign-off of all skills, give the pass-off to your Educator or your department's designated personnel for documentation and record completion.

Supporting Documents:

- SafetyNet iREPORT Module User Assistance-access by clicking on? on iREPORT window
- CBT: iReport: our system for reporting medical errors and other events LMS course #86360
- CPG: Reportable Event Procedure

Skill Pass-Off:

*Competency Verification Method Key: D = Demonstrated/observed; V = Verbalized; R = Review of documentation; O = Other/see comment

Behavioral Objectives (Complete all applicable skills or write "n/a" and explain in Comments)	Competency Verification (see key above*)			Comments (Please initial and date comments)
	Date verified (mm/dd/yyyy)	Method*	Initials	
1. Demonstrate competency at the following: • Access iREPORT under clinical tab and Quality and Patient Safety • Access iREPORT using address bar • Access iREPORT under A-Z Index				
2. Verbalize: • Reportable situations or events • Steps to complete an iREPORT Event • How do you save an iREPORT to finish later • How do you turn in an iREPORT				
3. Identify: • When an iREPORT need to be completed • Process for follow up and location of final iREPORT document				

Final Pass-Off:

The following signatures confirm that this employee has been trained and observed in the above skill set and has demonstrated competency.

Evaluator Name (print): _____   Position: _____   Department/Facility: _____

Evaluator Signature: _____   Initials: _____   Date (mm/dd/yyyy): _____

Employee Signature: _____   Date (mm/dd/yyyy): _____

Additional Evaluators if Applicable:

Initials	Name	Role		Initials	Name	Role

Upon Completion Immediately Submit for Recording into the Learning Management System

Updated 10/12/15 Approval Date: jagamble 10/12/15   Page 1 of 1

Appendix D

Item	Unit Cost	Quantity	Total Cost
You Call the Shots Training	$33.22	8	$265.76
Successful Mentoring Course	$16.61	22	$365.42

Appendix E

Study Title: Methods to Reduce Vaccine Errors

The purpose of this study is to reduce the number of vaccine errors by providing vaccine education and through mentoring new staff members. We are doing this study because vaccine errors continue to rise, and nursing leader have been asked to find a solution to this challenging situation. As the healthcare environment is rapidly changing and advancing, education and support of healthcare providers also needs to change to meet the needs of staff in order to keep patients safe.

I would like to ask you to complete the enclosed questionnaire and return it in the enclosed self-addressed stamped envelope.

A certificate will be provided to employees who complete the mentoring program. Participation and outcome of the study will not affect employment status. Information collected will be kept confidential.

This study will not track patient health information. The only data collected will be the type of immunization error that occurred, and a Likert survey to measure mentoring effectiveness. Data collected will be tracked by the study leader on an excel spreadsheet that is stored on a secured device and password protected.

If you have any questions, complaints, or if you feel you have been harmed by this research please contact Joni Anderson, Utah Valley Administration, Intermountain Medical Group 1-801-357-1988 or by email Joni.Anderson@imail.org.

If you have questions regarding your rights as a research subject, or if problems arise which you do not feel you can discuss with the Investigator, please contact the Intermountain Institutional Review Board at 1-800-321-2107 or by email at IRB@imail.org.

It should take 3-5 minutes to complete the questionnaire. Participation in this study is voluntary. You can choose not to take part. You can choose not to finish the questionnaire or omit any question you prefer not to answer without penalty or loss of benefits.

By returning this questionnaire, you are giving your consent to participate.

We appreciate your willingness to consider participation in this study.

Appendix F

Intermountain®
Healthcare Research
Institutional Review Board

September 06, 2019

IRB # 1051153 **Study Alias:** Methods to Reduce Vaccine Errors
PI: Andrea M Bowles
Title: *Using Mentoring to Properly Onboard and Train New Medical Assistants to Reduce Vaccine Errors*

Initial Application - Expedited Review
Approved: 09/05/2019
Submission Reference #: 018891

The above referenced Study Application has been reviewed and approved by a member of the Intermountain Healthcare IRB via expedited review in accordance with 45 CFR 46.110(f)(5),(7).

The following submission items have been approved:

Title	Version #	Version Date
Retrospective Protocol Template	Version 1.0	08/27/2019
Informed Consent Cover Letter	Version 1.0	08/27/2019

Continuing Review for this study is not required per 2018 Common Rule 45 CFR 46.109(f)(1)(i) as is it eligible for expedited review. Even though Continuing Review is no longer required, you are still required to submit any unanticipated problems as well as administrative, procedural or clinical changes to the IRB for approval prior to making them effective.

It is your responsibility to notify DHHS and/or the FDA, and the IRB of any occurrence or emergency that seriously increases the risk to or affects the welfare of subjects.

If you have any questions regarding this decision please contact the IRB analyst assigned to your study, Yvonne Elaine Skinner-Ntiri or call the IRB Office at (801) 408-1991 opt. 1.

Appendix G

BRADLEY
University

DATE: 26 SEP 2019

TO: Andrea Bowles, Peggy Flannigan
FROM: Bradley University Committee on the Use of Human Subjects
in Research

STUDY TITLE: Methods to reduce vaccine errors
CUHSR #:   64-19
SUBMISSION TYPE: Initial Review

ACTION: Approved
APPROVAL DATE: 26 SEP 2019
REVIEW TYPE: Quality Assurance

Thank you for the opportunity to review the above referenced proposal. The Bradley University Committee on the Use of Human Subject in Research has determined the proposal to be NOT HUMAN SUBJECTS RESEACH thus exempt from IRB review according to federal regulations.

The study has been found to be not human subject research pursuant to 45 CFR 46.102(i), not meeting the federal definition of research (not contributing to generalizable knowledge). Please note that it is unlawful to refer to your study as research.

Your study does meet general ethical requirements for human subject studies as follows:
1. Ethics training of project personal is documented.
2. The project involves no more than minimal risk and does not involve vulnerable population.
3. There is a consent process that:
    • Discloses the procedures
    • Discloses that participation is voluntary
    • Allows participants to withdraw
    • Discloses the name and contact information of the investigator
    • Provides a statement of agreement
4. Adequate provisions are made for the maintenance of privacy and protection of data.
5. Your study is exempt for HIPAA regulations in that the covered entity will de-identify the health information used in your study pursuant to 45 CFR 164.502 (d).

Please submit a final status report when the study is completed. A form can be found on our website at https://www.bradley.edu/academic/cio/osp/studies/cuhsr/forms/. Please retain study records for three years from the conclusion of your study. Be aware that some professional standards may require the retention of records for longer than three years. If this study is regulated by the HIPAA privacy rule, retain the research records for at least 6 years.

Be aware that any future changes to the protocol must first be approved by the Committee on the Use of Human Subjects in Research (CUHSR) prior to implementation and that substantial changes may result in the need for further review. These changes include the addition of study personnel. Please submit a Request for Minor Modification of a Current Protocol form found at the CUHSR website at https://www.bradley.edu/academic/cio/osp/studies/cuhsr/forms/ should a need for a change arise. A list of the types of modifications can be found on this form.

While no untoward effects are anticipated, should they arise, please report any untoward effects to CUHSR immediately.

This email will serve as your written notice that the study is approved unless a more formal letter is needed. You can request a formal letter from the CUHSR secretary in the Office of Sponsored Programs.

Appendix H

DATE: 21 OCT 2019
TO: Andrea Bowles, Peggy Flannigan
FROM: Bradley University Committee on the Use of Human Subjects in Research
 STUDY TITLE: Methods to reduce vaccination errors

CUHSR #:   64-19
INITIAL APPROVAL: 26 SEP 2019
SUBMISSION TYPE: Request for Minor Modification

ACTION: Approved Minor Modification
APPROVAL DATE: 21 OCT 2019
REVIEW TYPE: Initial Full Review/ Modification expedited

The modifications to your study have been approved. These modifications include;
- Change the word "project" in the consent to "study". The local IRB (Intermountain IRB) approved this as research and the consent should reflect this.

This modification does not alter the risk to subjects per the initial approval.

Be aware that future changes to the protocols must first be approved by the Committee on the Use of Human Subjects in Research (CUHSR) prior to implementation and that substantial changes may result in the need for further review.

While no untoward effects are anticipated, should they arise, please report any untoward effects to CUHSR immediately.

This change to the study will be noted on the next CUHSR meeting agenda. This email will serve as your written notice that the change to the study was approved prior to implementation. Thank you for alerting CUHSR of the proposed change.