

EARLY PRIMARY CARE PROVIDER FOLLOW-UP FOR HIGH READMISSION RISK
NATIVE HAWAIIAN HEALTH PROJECT PATIENTS AT THE QUEEN'S MEDICAL
CENTER

A DOCTOR OF NURSING PRACTICE PROJECT SUBMITTED TO THE GRADUATE
DIVISION OF THE UNIVERSITY OF HAWAI'I AT MĀNOA IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF NURSING PRACTICE

MAY 2018

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Keywords: Readmission, PCP, Follow-up, Transitional Care, Discharge Planning

Dedication

This is dedicated to my loving family.

Acknowledgements

I would like to express my sincere gratitude to the Native Hawaiian Health Project team—Renee, Lisa, Kau‘i, Kehau, Here, Damien, Robert and Minky. This project would not have been possible without all of your hard work, commitment, and support.

To the Queen Emma Clinic team, in particular Dr. Fritzie Igno, Charness Lam, and Alan Terada—thank you for believing in my project vision, and providing the resources to make it a reality.

I would like to thank my DNP project committee—Dr. Maureen Shannon for your expert guidance and unwavering support, Renee Latimer for challenging me to grasp the true essence of evidence-based practice, Lisa Garrett for your mentorship and extensive project contributions, and Dr. Jacqueline Ng-Osorio for your expert advice and detailed review.

Abstract

Hospitals within the United States are burdened by the steep costs associated with preventable readmissions. With growing concern over high readmission rates among Native Hawaiians, The Queen’s Medical Center implemented the Native Hawaiian Health (NHH) Project. The author of the Doctor of Nursing Practice project partnered with the NHH Project to develop, implement, and evaluate an evidence-based readmission reduction practice change. The Iowa Model was selected as the conceptual framework to guide the project.

Following an analysis of NHH Project data, it was revealed that primary care provider (PCP) follow-up for “high readmission risk” patients could be significantly improved. Following a literature review on PCP follow-up timeliness, key recommendations were synthesized and informed the development of the practice change innovation—an early (2 business days) PCP follow-up visit guideline.

To operationalize the guideline, an interdisciplinary workflow process was implemented. The workflow process utilized the NHH Project APRN’s risk assessment reports to substantiate early PCP follow-up for high readmission risk patients at the Queen Emma Clinic. To evaluate project outcomes, a “process” and “impact” evaluation was conducted.

All “process” measures improved following implementation, demonstrating guideline adherence and workflow functionality. A post-pilot focus group identified that staff viewed the project favorably; select staff unawareness of the practice change was perceived as a barrier. In regard to “impact” measures, while the overall readmission rate remained unchanged, the readmission rate increased for patients who *did not receive* PCP follow-up, and decreased for patients who *did receive* PCP follow-up. These findings suggest the practice change may have

prevented an increase in overall readmission rate. An incidental finding was the high rates of homelessness, substance use, and/or mental illness among patients who *did not receive* PCP follow-up. This trend identified the need to explore innovative approaches to health maintenance for these vulnerable populations.

As a quality improvement initiative, the project had several limitations. First, the practice change was implemented in a fluid environment without controlled variables and conditions. Second, the project's marginal sample size limited the ability to draw reliable inferences from evaluation data. Despite these limitations, practice change sustainment and expansion should be considered.

Table of Contents

Acknowledgements	iii
Abstract.....	iv
List of Tables	ix
List of Figures.....	x
List of Abbreviations	xi
CHAPTER 1. EXECUTIVE SUMMARY	1
Introduction	1
Literature Review and Synthesis	1
Innovation and Objectives	2
Methods	2
Results	2
Discussion.....	3
CHAPTER 2. PROBLEM	4
Introduction	4
Conceptual Framework.....	5
Practice Problem.....	7
Project Topic.....	8
Literature Review and Synthesis (I)	9
Assemble Relevant Research and Related Literature.....	9
Critique and Synthesize Research for Use in Practice	10
Primary Care Follow-up Timeliness.....	16
Literature Review and Synthesis (II).....	17
Assemble Relevant Research and Related Literature.....	17
Critique and Synthesize Research for Use in Practice	18
Innovations and Objectives	20
Summary.....	21

CHAPTER 3. METHODS	22
Objectives	22
Clinical Question	22
Purpose Statement	22
Implementation Plan	23
The Practice Change	23
Characteristics of the Innovation	25
Sustainability Plan	27
Sampling Plan	28
Evaluation Plan	30
Evaluation Type, Design, and Definitions	30
Data Management Plan	33
Timeline	36
Resources	37
Financial	37
Human	37
Time	37
Physical	38
Human Subjects Considerations	38
Autonomy	38
Non-maleficence & Beneficence	38
Justice	39
IRB	39
Summary	39
CHAPTER 4. RESULTS	41
Objectives	41
Description of Sample	41
Trend Analyses for Process and Impact Measures	42
Process Evaluation	42
Impact Evaluation	46
Project Evolution	48
Expected versus Actual Outcomes	48
Facilitators versus Barriers	50
Summary	52

CHAPTER 5. DISCUSSION	53
Interpretation of Findings	53
Pre-implementation	53
Implementation	54
Evaluation	54
Limitations	56
Future Plans and Implications	56
Plans for Dissemination	57
DNP Essentials	57
Summary	58
Appendix A	60
Appendix B	61
Appendix C	62
Appendix D	63
References	64

List of Tables

Table 2.1 Readmission Reduction Intervention Studies.....	10
Table 2.2 Common Interventions Among 17 Interventional Studies.....	13
Table 2.3 Common Interventions Among Five Readmission Reduction Studies	14
Table 2.4 PCP Follow-up Timeliness Studies: Level of Evidence Category Frequency	18
Table 3.1 Innovation Users' Adopter Categories, Contribution, and Influence	28
Table 3.2 Evaluation Plan Definitions.....	31
Table 3.3 "Process" and "Impact" Evaluation Designs, Data Sources, and Data Elements.....	34
Table 4.1 Baseline (T1) and Comparison (T2) Groups' Demographic Data	41
Table 4.2 T1-T2 Process Evaluation: General Findings.....	43
Table 4.3 T1-T2 Process Evaluation: Queen Emma Clinic versus Follow-up Elsewhere	43
Table 4.4 Post-Pilot Staff Focus Group Key Points	45
Table 4.5 T1-T2 Impact Evaluation: General Readmission Rates	46
Table 4.6 T1-T2 Impact Evaluation: Queen Emma Clinic versus Follow-up Elsewhere	47
Table 4.7 Expected versus Actual Outcomes of the DNP Project.....	49
Table 4.8 Facilitators and Barriers of the DNP Project.....	51
Table 5.1 DNP Essentials & DNP Student Related Activities	58

List of Figures

Figure 2.1 The Iowa Model	6
Figure 2.2 Synthesized Interventions and an Associated Practice Bundle Innovation	16
Figure 3.1 Guideline Operationalization Workflow Process.....	25
Figure 3.2 DNP Project Timeline.....	36
Figure 4.1 T1-T2 Impact Evaluation: General Readmission Rates in Bar Graph Form	47

List of Abbreviations

AACN – American Association of Colleges of Nursing
AHA – American Hospital Association
APRN – advanced practice registered nurse
CDC – Centers for Disease Control and Prevention
CM – case management/case manager
CMS – Centers for Medicare and Medicaid Services
COPD – chronic obstructive pulmonary disease
CPG – clinical practice guideline
D/C – discharge
DNP – Doctor of Nursing Practice
EBP – evidence-based practice
ED – emergency department
F/U – follow-up
Freq. – frequency
FUE – follow-up elsewhere
HHIC - Hawai‘i Health Information Corporation
HRR – high readmission risk
IRB – institutional review board
NH – Native Hawaiian
NHCHC – National Health Care for the Homeless Council
NHH – Native Hawaiian Health
OGE – Office of Graduate Education
PCP – primary care provider
PICO – population, intervention/innovation, comparison intervention, outcome of interest
PN – patient navigator
Pts. – patients
QEC – Queen Emma Clinic
QI – Quality Improvement
QMC – The Queen’s Medical Center
RCT – randomized controlled trial
UHM - University of Hawai‘i at Mānoa
WSHA – Washington State Hospital Association

CHAPTER 1. EXECUTIVE SUMMARY

Introduction

Hospitals within the United States (U.S.) are burdened by the steep costs associated with preventable readmissions. With growing concern over high readmission rates among Native Hawaiians, The Queen's Medical Center implemented the Native Hawaiian Health (NHH) Project. The author of the Doctor of Nursing Practice (DNP) project, partnered with the NHH Project team to develop, implement, and evaluate an evidence-based readmission reduction practice change. The Iowa Model was selected as the conceptual framework to guide the project.

Literature Review and Synthesis

Following an analysis of NHH Project data, it was revealed that primary care provider (PCP) follow-up for “high readmission risk” patients could be significantly improved. Following a literature review on the topic, four key recommendations were synthesized. First, individual readmission risk ratings should be used to inform the timeliness of the first post-discharge PCP follow-up visit (Coleman & Williams, 2007; Jackson, Shahsahebi, Wedlake, & DuBard, 2015b). Second, PCP follow-up visits should occur within 48 to 72 hours of discharge for patients at high risk for readmission (American Hospital Association, 2014; Bisognano & Boutwell, 2009; Coleman & Williams, 2007; National Health Care for the Homeless Council, 2012; Naylor et al., 1999; Nielsen et al., 2008; Schall, Coleman, Rutherford, & Taylor, 2013). Third, to facilitate timely PCP follow-up, experts recommended scheduling follow-up appointments prior to discharge (Schall et al., 2013; Washington State Hospital Association [WSHA], 2017). Lastly, hospital staff should collaborate with primary care practices to streamline follow-up processes for high readmission risk patients without a PCP (Schall et al., 2013; WSHA, 2017).

Innovation and Objectives

An evidence-based early (2 business days) PCP follow-up visit guideline for high readmission risk NHH Project patients was selected as the practice change innovation. The objective of the practice change was to reduce preventable readmissions.

Methods

The practice change incorporated an interdisciplinary workflow process that utilized the NHH Project APRN's individualized risk assessment reports to substantiate early PCP follow-up for high readmission risk patients at the Queen Emma Clinic (QEC). To evaluate the outcomes of the practice change, a "process" and "impact" evaluation was conducted. The "process" evaluation consisted of two components, (1) T1-T2 "process" testing to measure guideline adherence and workflow functionality and (2) a post-pilot staff focus group. To evaluate the practice change's impact on readmissions, T1-T2 "impact" testing was utilized.

Results

The project's sample consisted of high readmission risk NHH Project patients divided into two groups. The baseline group (T1) consisted of individuals discharged during the four months *prior* to implementation, while the comparison group (T2) consisted of individuals discharged during the four months *after* initiating implementation. Demographic data (sample size, mean age, and gender distribution) for T1 are as follows: n=75, 53.8 years, 78.7% male, 21.3% female, and 0% transgender. Demographic data for T2 are as follows: n=87, 53.6 years, 71.3% male, 27.6% female, and 1.1% transgender.

Following implementation, "process" and "impact" trends were identified from evaluation data and included: (1) an increase in the percentage of patients who received "any"

and/or “early” PCP follow-up; (2) a decrease in the mean number of days to PCP follow-up; (3) no change in the overall readmission rate for “all high readmission risk patients”; and (4) a 2% readmission rate reduction for both QEC patients and patients who received PCP follow-up elsewhere (FUE). The post-pilot focus group identified that frontline staff viewed the project favorably; select staff unawareness of the practice change was viewed as a project barrier.

Discussion

All “process” measures improved following implementation, substantiating staff adherence to the guideline, and workflow process functionality. In regard to “impact” measures, while the overall readmission rate for “all high readmission risk patients” remained unchanged, the readmission rate increased for patients who “did not receive PCP follow-up”, and decreased for patients who received “any” and/or “early” PCP follow-up. Additionally, both QEC and FUE readmission rates decreased by 2%. These findings suggest that the practice change’s impact may have prevented the overall readmission rate from increasing. An incidental project evaluation finding was the high rates of homelessness, substance use, and/or mental illness among patients who *did not receive* PCP follow-up. This trend identified the need to explore innovative approaches to health maintenance for vulnerable populations.

The project had several limitations, including those inherent to quality improvement initiatives. First, the practice change was implemented in a fluid environment, in the absence of controlled variables and constant conditions. Second, the project’s marginal sample size limited the ability to draw reliable inferences from evaluation data. Despite these limitations, practice change sustainment and expansion should be considered.

CHAPTER 2. PROBLEM

Introduction

Approximately 3.3 million readmissions occurred in the U.S. in 2011, costing hospitals nearly \$41.3 billion (Hines, Barrett, Jiang, & Steiner, 2014). A hospital *readmission* is often measured as a subsequent inpatient admission within 30 days following patient discharge. Thirty-day readmission rates have been increasingly viewed as a care quality indicator by insurance companies and the Centers for Medicare and Medicaid Services (CMS) (Bongiovanni, 2016; CMS, n.d.). In a study by Moy et al. (2013), Native Hawaiians (NHs) experienced higher rates of preventable hospitalizations when compared to Japanese, Chinese, and Whites. According to The Queen's Medical Center's (QMC) 2015 fiscal year data, NHs comprised 21% of the hospital's total readmissions (Latimer, Fleming, & Paloma, 2016). With the advent of payment penalties imposed on hospitals with high readmission rates, hospitals across the country are seeking evidence-based interventions to reduce preventable readmissions and improve post-discharge care (Joynt & Jha, 2012).

The objective of the Doctor of Nursing Practice (DNP) project was to develop, implement, and evaluate an evidence-based practice change aimed at reducing preventable readmissions among QMC's NH population. In this chapter, identified triggers necessitating the practice change will be covered. Additionally, the literature review and synthesis processes will be detailed as the synthesized recommendations from this review guided the development of the selected practice change innovation.

Conceptual Framework

The conceptual framework used to guide this evidence-based practice (EBP) project was the Iowa Model (see Figure 2.1). The Iowa Model was selected based on its acceptance within the nursing community and its utility in facilitating projects in an organized step-wise manner. Using problem and knowledge-focused triggers as catalysts, nurses are encouraged to synthesize quality evidence to inform decision-making (Titler et al., 2001). This comprehensive model is built upon the following eight steps: (1) selecting a topic based on problem and knowledge-focused triggers, (2) forming a team, (3) assembling relevant literature, (4) critiquing and synthesizing the literature, (5) developing an EBP innovation, (6) piloting and implementing the innovation, (7) monitoring and analyzing structure, process, and outcome data, and (8) disseminating project results (Titler, et al., 2001).

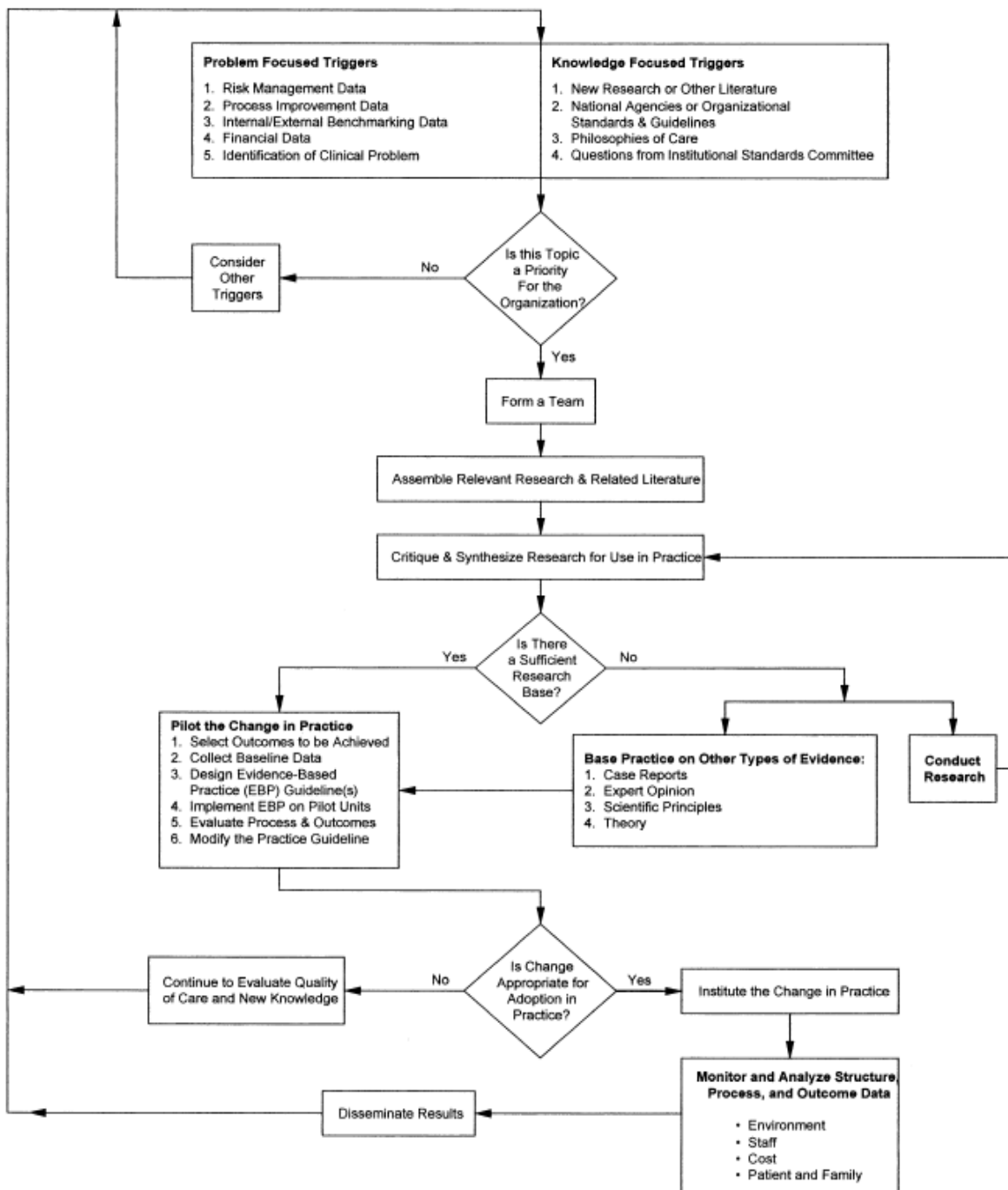


Figure 2.1. The Iowa Model. Adapted from “The Iowa Model of Evidence-Based Practice to Promote Quality Care,” by M. Titler et al., 2001, *Critical Care Nursing Clinics of North America*, 13(4), p. 497-509.

Practice Problem

Healthcare systems are heavily burdened by the steep costs associated with preventable readmissions. Potentiating the existing burden, hospitals are also at risk for readmission-related payment penalties imposed by CMS and insurance companies (Bongiovanni, 2016). Numerous national initiatives have been established to reduce preventable readmissions, including Hospital Compare, the Partnership for Patients Program, and the Hospital Readmissions Reduction Program (Gerhardt et al., 2013). In congruence with national efforts, local EBP interventions aimed at reducing hospital readmissions have the ability to promote cost-savings and positively impact patient outcomes.

According to the Hawai‘i Health Information Corporation (HHIC) (2014), more than 5,400 readmissions occurred in Hawai‘i during 2013, resulting in \$239 million in hospital charges. Of those readmissions, Medicare held the greatest share (55%), followed by Medicaid-QUEST (23%), private insurance (15%), and the uninsured (2%) (HHIC, 2014). The most common 30-day Medicare readmission diagnoses included: infections, congestive heart failure, pneumonia, COPD, stroke, renal failure, acute myocardial infarction, and cardiac conduction disorders (HHIC, 2014).

Native Hawaiians are particularly vulnerable to being readmitted to the hospital, as they are disproportionately affected by chronic disease, mental illness, and psychosocial stress (Kamehameha Schools, 2014; Latimer et al., 2016). According to QMC’s 2015 fiscal year data, NHs comprised 21% of the hospital’s total readmissions with their top five readmission diagnoses noted to include: psychosis, chemotherapy-related events, alcohol/drug abuse or dependence, sepsis, and cellulitis (Latimer et al., 2016). Homelessness has also remained a

consistent challenge, with the number of shelter clients of NH ethnicity increasing 55.8% from 2006 to 2013 (Kamehameha Schools, 2014). Among major ethnic groups in the state, NHs have the highest rate of unemployment and the lowest mean income (Kamehameha Schools, 2014). With the distinctive health and psychosocial challenges experienced by many NHs, innovative and comprehensive support services are needed to facilitate improved health outcomes.

Project Topic

With growing concern over high readmission rates among QMC's NH population, a grant-funded pilot—the Native Hawaiian Health (NHH) Project, was implemented in November 2016. The NHH Project employs the services of four culturally competent patient navigators (PNs) and one APRN to assist NH patients in their transition from the hospital to the community setting. The author partnered with the NHH Project team to develop an evidence-based practice change that supported their project goal of reducing preventable readmissions. The author's content experts for the DNP project included the NHH Project director and the NHH Project APRN.

Triggers. To determine an effective approach to a given practice problem, it is critical to first examine its problem sources or *triggers* (Dearholt & Dang, 2012). The triggers that prompted the development of a readmission reduction practice change for QMC's NH population are discussed in the following sections.

Problem-focused triggers. Problem-focused triggers are sources of institutional problems identified by staff through data collection (Dearholt & Dang, 2012). The major problem-focused trigger specific to QMC and the NHH Project was the issue of readmission-related payment penalties imposed on hospitals by insurance companies and CMS (Bongiovanni, 2016). The

NHH Project team identified several problem-focused triggers specific to QMC's NH adult population, including high readmission rates and frequent emergency department (ED) utilization (Latimer et al., 2016). The QMC's mission is to provide quality health services to improve the well-being of NHs and all of the people of Hawai'i (QMC, 2017). Based on QMC's mission statement and the aforementioned triggers, developing an evidence-based practice change to support the healthcare needs of QMC's NH patients grew into a Native Hawaiian Board priority.

Knowledge-focused triggers. Knowledge-focused triggers are problem sources from “outside the institution” and may be identified through new research, national agencies, and guideline recommendations (Mark, 2016). With numerous studies and guidelines highlighting the utility of transitional care interventions in improving patient outcomes and reducing readmissions, the DNP project aimed to align its efforts with existing literature recommendations.

Literature Review and Synthesis (I)

Assemble Relevant Research and Related Literature

An electronic literature search was completed using PubMed, CINAHL, Medline, Google, and Cochrane. Search terms and associated search combinations included: “patient navigation”, “transitional care”, “readmission reduction”, “discharge planning”, “chronic disease”, “behavioral health”, “Medicaid”, “homelessness”, and “minority”. A total of 75 publications were examined for relevancy based on a review of titles and abstracts. Articles were narrowed down to 20 based on the following inclusion criteria, (1) published within the last 10 years, (2) adult participants (18 years of age and older), and (3) use of a readmission reduction or

navigation-related intervention. Duplicate articles and interventions provided in a multi-participant group setting, were excluded from the review.

A combined rating system adapted from Dearholt and Dang’s (2012) Johns Hopkins Nursing Evidence-Based Practice Guideline and Melnyk and Fineout-Overholt (2011) was used to grade the level of evidence (South Dakota State University, 2015). Refer to Table 2.1 for a frequency list of evidence sources retrieved per level of evidence category.

Table 2.1

Readmission Reduction Intervention Studies: Level of Evidence Category Frequency (n=20)

Level of evidence	Description	# of articles
I	Systematic review or meta-analysis of RCTs; evidence-based CPGs based on systematic reviews	4
II	Well-designed RCT	5
III	Controlled trial without randomization (quasi-experimental study)	1
IV	Single non-experimental study (case-control, correlational, cohort, cross-sectional, or longitudinal studies)	0
V	Systematic review of descriptive & qualitative studies; systematic review of qualitative studies	3
VI	Single descriptive study or qualitative study	1
VII	Opinion of authorities and/or reports of expert committees; quality improvement reports; evidence-based projects	6

Note. RCTs = randomized controlled trials; CPG = clinical practice guideline.

Critique and Synthesize Research for Use in Practice

There was a lack of studies examining readmission reduction interventions among NH patients with co-occurring health and psychosocial challenges. Due to this issue, the search approach was broadened to encompass each facet of this unique population. For the purpose of this review, “transitional care interventions” were considered to be a specific component under the umbrella term of “readmission reduction interventions”. Additionally, not all included studies focused specifically on “readmission reduction” interventions; these studies’ interventions were

considered relevant to the DNP project due to their focus on the local population in Hawai‘i, health disparity elimination, disease self-management, or enhancing patient healthcare utilization.

Study characteristics. Of the 20 articles included in this review, 18 were from the U.S. (with three of these from Hawai‘i), one from Canada, and one from Singapore. There were 17 studies that analyzed the effect of an interventional program (see Table 2.2), two articles that provided background information on specific interventional programs, and one meta-analysis that did not discuss the specifications of analyzed interventional programs. Only four articles focused on patients with co-occurring health and psychosocial challenges. Three studies’ eligibility criteria focused on chronically diseased individuals with serious mental illnesses; schizophrenia was the behavioral health diagnosis most common among these studies. The most common chronic medical conditions among reviewed studies’ patient populations included: cardiovascular disease, diabetes, hypertension, high cholesterol, arthritis, COPD, and kidney disease. Other common participant characteristics included: Medicare/Medicaid eligible, income of less than \$10,000, unmarried/non-cohabitant, and an education level of a high school diploma or less.

Readmission risk assessment. Several interventional studies utilized risk assessment tools to identify high readmission risk patients. Two articles used the LACE (Length of stay, Acuity on admission, Comorbidities, and ED visits) Index Scoring Tool for Risk Assessment of Hospital Readmission (Lee et al., 2015, Level II; McKale, 2014, VII). As a note, the readmission risk assessment tool currently utilized by the NHH Project APRN is the MultiCare Risk Assessment Tool. The Multicare Risk Assessment Tool was adapted from the evidence-based

Transitional Care Model, and can be found in Appendix A (Hirschman, Shaid, McCauley, Pauly, & Naylor, 2015; Washington State Hospital Association [WSHA], 2017).

Interventions. As previously discussed, 17 of the 20 reviewed articles implemented and evaluated the effect of an interventional program. A list of each study's interventional program components can be found in Table 2.2; the table also includes the inclusion frequency of each intervention component. Of the 17 studies, the top three interventions based on inclusion frequency were, (1) patient and caregiver education, (2) face to face visits, and (3) scheduling of follow-up appointments.

Of the 17 interventional studies, nine developed interventional programs specifically for the purpose of reducing preventable readmissions. Of those nine, seven were effective in reducing readmission rates, and five showed statistically significant reductions. Similar to the previous table, Table 2.3 illustrates each of the five studies' interventional programs broken down into individual intervention components. These five studies' top three interventions based on inclusion frequency were (1) face to face visits, (2) patient and caregiver education, and (3) medical home identification.

Table 2.2

Common Interventions Among 17 Interventional Studies' Interventional Programs (n=17)

	Level of evidence	Patient & caregiver education	Face to face visits	Schedule f/u appointments	Counseling & coaching	Link to social services	Telephone f/u	Communicate with providers	Medication reconciliation	Medical home identification	Accompany to appointments
1.	I		X					X		X	
2.	I			X	X						
3.	I		X			X					
4.	II	X	X	X			X	X			
5.	II	X		X		X					
6.	II	X	X	X	X	X	X				
7.	II	X			X						
8.	II	X	X	X	X	X		X	X		X
9.	III	X	X	X		X	X			X	
10.	V	X	X	X			X				
11.	V	X	X				X		X		X
12.	V	X								X	
13.	VI	X	X	X	X			X	X	X	
14.	VII	X	X	X		X		X		X	X
15.	VII	X	X		X		X	X	X		
16.	VII	X	X	X	X	X	X		X		X
17.	VII	X	X	X	X	X		X			X
	Freq.	14	13	11	8	8	7	7	5	5	5
	%	82	76	65	47	47	41	41	29	29	29

Note. Each row represents individual study interventions' program components. F/u = follow-up; Freq. = frequency.

Table 2.3

Common Interventions Among Five Readmission Reduction Studies' Interventional Programs (n=5)

	Level of evidence	Face to face visits	Patient & caregiver education	Medical home identification	Schedule f/u appointments	Link to social services	Telephone f/u	Communicate with providers	Medication reconciliation	Counseling & coaching	Accompany to appointments
1.	I	X		X				X			
2.	I	X				X					
3.	III	X	X	X	X	X	X				
4.	V	X	X				X		X		X
5.	VI	X	X	X	X			X	X	X	
	Freq.	5	3	3	2	2	2	2	2	1	1
	%	100	60	60	40	40	40	40	40	20	20

Note. Each row represents individual study interventions' program components. F/u = follow-up; Freq. = frequency.

Strengths, quality, quantity, and consistency of evidence. As depicted in Table 2.1, the level of evidence grading strength varied among studies. Excluding rigorous systematic reviews, the remaining articles' methodological quality was deemed "fair". Explanations for the "fair" rating will be discussed in the next section (see "Weaknesses, gaps, and limitations"). A total of 20 articles were reviewed and synthesized by one individual, enhancing evidence critique validity. Lastly, a substantial number of reviewed articles showcased interventional program efficacy in significantly reducing readmissions (Enard & Ganelin, 2013, Level III; Jackson et al., 2015a, Level VI; Jayakody et al., 2016, Level V; Leppin et al., 2014, Level I; Verhaegh et al., 2014, Level I).

Weaknesses, gaps, and limitations. The first major weakness observed from the literature was the lack of high-quality research on culturally appropriate readmission reduction interventions for NHs with co-occurring health and psychosocial challenges. Secondly, in regard

to study design, only one study assessed the efficacy of a single intervention; the remaining studies combined interventions into programs creating the challenge of extrapolating single-intervention efficacy (Jayakody et al., 2016, Level V). Lastly, interventional study populations were often of marginal sample sizes. The aforementioned concerns may limit the generalizability and applicability of synthesized recommendations.

Initial innovation recommendation. The author developed a practice bundle innovation having synthesized interventions with the highest inclusion frequencies according to Tables 2.2 and 2.3 (see Figure 2.2). The synthesis revealed three common intervention themes, (1) face to face visits, (2) patient and caregiver education, and (3) primary care provider (PCP) follow-up. The author and content expert (NHH Project director) met to discuss the feasibility of implementing the three-intervention practice bundle. In response to the innovation idea, the author's content expert recommended focusing specifically on one of the three interventions—PCP follow-up, with an emphasis on follow-up timeliness. Based on the feedback received, the author completed a second literature review and synthesis on the topic of post-discharge PCP follow-up visit timeliness, which is detailed in the subsequent sections.

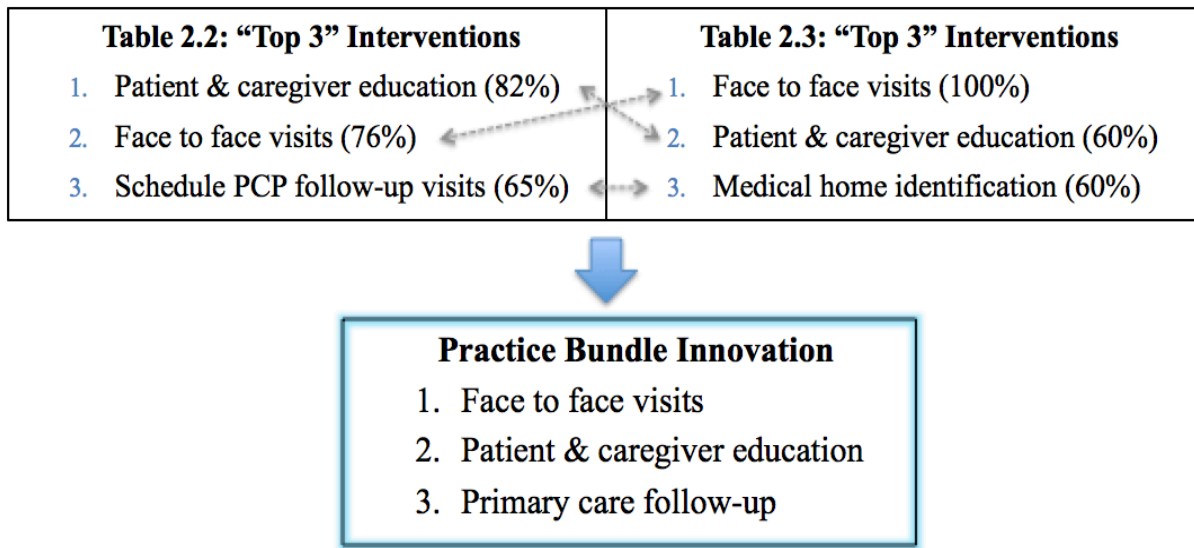


Figure 2.2. Synthesized interventions and an associated practice bundle innovation.

Primary Care Follow-up Timeliness

The executive decision was made by the author’s content expert to focus exclusively on post-discharge PCP follow-up visit timeliness. To determine the NHH Project’s PCP follow-up baseline trends, quarter three (January 2017 to March 2017) project data were analyzed. The data revealed that 47% of NHH Project patients were clinically identified as high readmission risk according to the MultiCare Risk Assessment Tool (see Appendix A). Of that 47%, 37% were documented as having followed-up with their PCPs after discharge, in the form of an in-person appointment. A meeting with the NHH Project PNs was held to identify reasons for the low PCP follow-up percentage. The meeting revealed that the follow-up percentage was exaggeratedly low due to the following factors: (1) PNs were unable to get in touch with select patients following discharge (e.g., homeless individuals), (2) select patients declined PN assistance in scheduling a follow-up appointment, or (3) select patients independently followed up with their PCP, and the appointment was not documented. Identifying the low PCP follow-up percentage

highlighted the need to improve data collection methods and inquiry efforts into determining whether PCP follow-up occurred after discharge for those declining PN assistance. Despite concerns related to NHH Project data validity, it was clear that PCP follow-up visit timeliness for high readmission risk NHH Project patients could be significantly improved. In the following sub-sections, the author will detail the literature review, synthesis, and practice change innovation relevant to PCP follow-up visit timeliness for high readmission risk patients.

Literature Review and Synthesis (II)

Assemble Relevant Research and Related Literature

An electronic literature search was completed using PubMed, CINAHL, Medline, Google, and Cochrane. Search terms and associated search combinations included: “discharge planning”, “transitional care”, “post-discharge”, “post-hospitalization”, “follow-up”, “primary care provider”, “outpatient”, “readmission reduction”, “high risk”, “timeliness”, “appointment”, and “visit”. A total of 25 publications were narrowed down to 11 based on the following inclusion criteria, (1) published within the last 20 years, (2) adult participants (18 years of age and older), and (3) utilization of readmission risk segmentation (e.g., low, medium, high, intensive). Exclusion criteria included duplicate articles and studies with populations discharged to institutional settings (e.g., long-term care facility, skilled nursing facility). Each publication’s level of evidence was graded, and is presented in Table 2.4.

Table 2.4

PCP Follow-up Timeliness Studies: Level of Evidence Category Frequency (n=11)

Level of evidence	Description	# of articles
I	Systematic review or meta-analysis of RCTs; evidence-based clinical practice guidelines based on systematic reviews	0
II	Well-designed RCT	2
III	Controlled trial without randomization (quasi-experimental study)	0
IV	Single non-experimental study (case-control, correlational, cohort, cross-sectional, or longitudinal studies)	1
V	Systematic review of descriptive & qualitative studies; systematic review of qualitative studies	0
VI	Single descriptive study or qualitative study	0
VII	Opinion of authorities and/or reports of expert committees; quality improvement reports; evidence-based projects	8

Note. RCTs = randomized controlled trials; CPG = clinical practice guideline.

Critique and Synthesize Research for Use in Practice

Study characteristics. All 11 publications reviewed were carried out in the U.S. The majority of evidence sources included expert opinions, committee reports, and national program guidelines. Each source provided follow-up recommendations based on readmission risk segmentation. Three studies focused on specific high-risk groups, including the elderly, homeless, and individuals diagnosed with heart failure (National Health Care for the Homeless Council [NHCHC], 2012, Level VII; Naylor et al., 1999, Level II; Nielson et al., 2008, Level VII).

Follow-up visit timeliness. A review of the literature revealed that readmission risk should be assessed for each patient during the hospitalization, and that individual risk assessments should be used to inform the timeliness of the first post-discharge PCP follow-up visit (Coleman & Williams, 2007, Level VII; Jackson, Shahsahebi, Wedlake, & DuBard, 2015b, Level IV). Among the available evidence, there was strong support and recommendations for

follow-up visits to occur within 48 to 72 hours of discharge for patients identified as high readmission risk (American Hospital Association [AHA], 2014, Level VII; Bisognano & Boutwell, 2009, Level VII; Coleman & Williams, 2007, Level VII; NHCHC, 2012, Level VII; Naylor et al., 1999, Level II; Nielsen et al., 2008, Level VII; Schall, Coleman, Rutherford, & Taylor, 2013, Level VII). In a cross-sectional study by Jackson et al. (2015b, Level IV), outpatient follow-up within 72 hours was found to reduce readmissions, but not significantly; statistically significant reductions were found with follow-up within seven days.

Implementation of timely PCP follow-up. To implement timely PCP follow-up for high readmission risk patients, it was recommended that hospital staff should schedule follow-up appointments with patients' designated PCPs prior to discharge (Schall et al., 2013, Level VII; WSHA, 2017, Level VII). For patients without an established PCP, experts recommended that hospital and/or transitional care staff should collaborate with affiliated primary care practices to develop streamlined processes to PCP follow-up for high-risk patients (Schall et al., 2013, Level VII ; WSHA, 2017, Level VII).

Strengths, quality, quantity, and consistency of evidence. Recommendation consistency across the literature was a noted strength of the reviewed evidence. The first consistent recommendation was that hospitalized patients should be assessed for readmission risk, and their risk rating used to inform the timeliness of the first post-discharge PCP follow-up visit (Coleman & Williams, 2007, Level VII; Jackson et al., 2015b, Level IV). Additionally, there was consistent literature support for PCP follow-up visits to occur within 48 to 72 hours post-discharge for high readmission risk patients (AHA, 2014, Level VII; Bisognano &

Boutwell, 2009, Level VII; Coleman & Williams, 2007, Level VII; NHCHC, 2012, Level VII; Naylor et al., 1999, Level II; Nielsen et al., 2008, Level VII; Schall et al., 2013, Level VII).

Weaknesses, gaps, and limitations. As displayed in Table 2.4, eight of the 11 sources were graded as lower level evidence. The majority of the literature reviewed consisted of expert opinions, committee reports, and national program guidelines. There is a growing need for new higher-level evidence studies on the topics of readmission risk segmentation and PCP follow-up visit timeliness. These studies are necessary to update the existing literature's breadth and conduct trials of the recommendations currently suggested by experts.

Innovations and Objectives

Timely PCP follow-up for high readmission risk patients was consistently recommended as a means of reducing preventable readmissions. Following preliminary analysis of NHH Project data, it was revealed that post-discharge PCP follow-up measures and readmission rates could be significantly improved. Following an analysis of current workflow processes, it was discovered that the NHH Project APRN determined each patient's readmission risk score, yet the score served no functional purpose following the assessment. According to the literature, risk assessment ratings should be used to inform the timeliness of the first post-discharge PCP follow-up visit (Coleman & Williams, 2007; Jackson et al., 2015b).

Based on these findings and recommendations, an early (2 business days) PCP follow-up visit guideline for high readmission risk NHH Project patients was selected as the practice change innovation. The NHH Project director decided to modify the recommended follow-up timeframe of "48 to 72 hours" to "2 business days" due to most PCP offices being closed on the weekend and to simplify data collection processes. To implement the practice change, the NHH

Project APRN's valuable risk assessment scores were used to identify high readmission risk patients. Following the APRN's assessment, an interdisciplinary workflow process facilitated early PCP follow-up for select high readmission risk patients.

Summary

Numerous interventions have been investigated for the purpose of reducing preventable readmissions. After plotting the intervention inclusion frequency of reviewed interventional programs, three themes emerged which were combined into a practice bundle and presented to the author's content expert (NHH Project director). The author's content expert recommended for the practice change innovation to focus specifically on one component of the practice bundle—primary care follow-up, with an emphasis on follow-up timeliness. Following a preliminary analysis of NHH Project data, it was revealed that PCP follow-up for high readmission risk patients could be significantly improved. After presentation of the results of the second literature review (on PCP follow-up timeliness) to the author's content experts, the collaborative decision was made to implement an early (2 business days) PCP follow-up visit guideline for high readmission risk NHH Project patients.

CHAPTER 3. METHODS

Objectives

The purpose of this chapter is to detail the author's planned methods for implementing the evidence-based practice (EBP) change and evaluating its process and impact. Specific plans regarding the Iowa Model's steps five (develop an EBP change), six (pilot and implement the change), and seven (monitor and analyze data) are discussed within this chapter.

The following is the constructed PICO, clinical question, and purpose statement relevant to the Doctor of Nursing Practice (DNP) project.

P (Population) – Native Hawaiian Health (NHH) Project adult (18 years of age and older) patients clinically identified as having high readmission risk

I (Innovation) – An evidence-based early (2 business days) primary care provider (PCP) follow-up visit guideline

C (Comparison Intervention) – Current standard of care

O (Outcome of Interest) – 30-day readmission rate reduction

Clinical Question

Will the implementation of an early (2 business days) PCP follow-up visit guideline reduce readmission rates for NHH Project patients clinically identified as high readmission risk?

Purpose Statement

The purpose of the DNP project was to improve timely PCP follow-up with the overarching goal of reducing readmission rates for NHH Project patients clinically identified as high readmission risk through the implementation of an early (2 business days) PCP follow-up visit guideline.

Implementation Plan

The Practice Change

The evidence-based practice change incorporated an early (2 business days) PCP follow-up visit guideline for NHH Project patients clinically identified as high readmission risk. Implementing the practice change required interdisciplinary collaboration and modifications to existing workflow processes. The goal of guideline implementation was to reduce preventable readmissions through the facilitation of early PCP follow-up after discharge for patients at highest risk for readmission.

Current standard of care. An operational process for scheduling PCP follow-up appointments based on readmission risk segmentation did not exist prior to the pilot project. The process for obtaining a post-discharge appointment prior to the pilot involved an inpatient case manager (CM) scheduling an appointment based on provider availability while the patient was still hospitalized. Since the initiation of the NHH Project in November 2016, NHH Project patient navigators (PNs) have been assisting with scheduling follow-up appointments for patients after they are discharged if a CM did not establish one during the inpatient stay. Based on preliminary NHH Project data, 37% of high readmission risk patients were documented as having received PCP follow-up after discharge, with isolated accounts attaining early (2 business days) follow-up.

Plan to improve practice. Following an analysis of current processes, it was discovered that the NHH Project APRN identified a readmission risk score for each NHH Project patient, yet the score served no distinct application following the assessment. The author recognized the

opportunity to utilize the APRN's risk scores to facilitate timely PCP follow-up for high readmission risk patients.

With the goal of implementing the evidence-based early (2 business days) PCP follow-up visit guideline, the author and content experts met with administration from the Queen Emma Clinic (QEC), a community health center within The Queen's Medical Center (QMC). The meeting was organized to discuss the possibility of collaborating on a workflow process that would facilitate early PCP follow-up for select high readmission risk NHH Project patients at QEC. The QEC administrative team agreed to the collaboration. As part of the workflow process, QEC requested for the NHH Project APRN to complete a standardized risk assessment report (see Appendix C) for each patient seeking early follow-up. The risk assessment report served as an informative tool to QEC staff, and assisted them in coordinating the appropriate resources to enhance the quality and efficiency of the early PCP follow-up appointment. The report was also used as a tool to NHH Project PNs and inpatient CMs in substantiating their early appointment requests with QEC.

The author's content experts, QEC administration, and the author collaboratively developed the interdisciplinary workflow process depicted in Figure 3.1. The workflow process created an efficient streamlined method for frontline staff to arrange early PCP follow-up appointments with QEC. While not *all* high readmission risk NHH Project patients arranged for PCP follow-up at QEC, having this resource available served as a safety-net for patients in need of expedited follow-up.

The NHH Project APRN calculates individual readmission risk assessment scores for all NHH Project patients using the MultiCare Risk Assessment Tool. Based on calculated scores, those with a score of **4 or higher** are identified as **high readmission risk**.



The NHH Project APRN completes a **Risk Assessment Report** for high readmission risk patients who: 1) are established with QEC, or 2) lack an established PCP.



CMs or PNs in need of a PCP follow-up appointment for a high readmission risk patient will contact QEC and utilize the Risk Assessment Report to substantiate the timely appointment.



QEC will schedule a PCP follow-up appointment within 2 business days following receipt of the patient's Risk Assessment Report and request from the CM or PN.

Figure 3.1. Guideline operationalization workflow process.

Characteristics of the Innovation

To ensure timely adoption of the guideline, it was critical to first examine its five “innovation attributes”. According to Rogers (2003), these five attributes (i.e., relative advantage, compatibility, complexity, trialability, and observability) account for 49% to 87% of an innovation’s rate of adoption variance. The following sub-sections detail each attribute in relation to the proposed early (2 business days) PCP follow-up visit guideline.

Relative advantage. Relative advantage is the degree of enhancement that an innovation provides compared to the current standard (Rogers, 2003). The evidence-based guideline intended to provide numerous advantages, including (1) enhanced patient care quality, (2) improved transitional care collaboration, (3) low operational cost, and (4) cost-savings. First, enhanced patient care quality was attained through facilitating timely PCP follow-up for high readmission risk patients. Utilizing risk segmentation to prioritize follow-up helped to ensure patients at highest risk for readmission were provided PCP services in a timely manner. During

PCP follow-up visits, providers have the opportunity to review discharge summaries, reconcile medications, discuss factors contributing to the patient's hospitalization, facilitate advance care planning, and more (California Healthcare Foundation, 2010).

A second relative advantage of the practice change was that it improved transitional care collaboration. The DNP project served as an opportunity to utilize interdisciplinary collaboration to improve current operations. Third, low operational cost was a positive attribute of the practice change, as there was no financial burden associated with implementation or evaluation. Fourth, readmission penalizations could be prevented if the practice change successfully reduced readmission rates.

Compatibility. Compatibility refers to the degree to which an innovation identifies with the potential adopter's existing values, needs, and experiences (Rogers, 2003). The QMC is strongly committed to improving the health and well-being of Native Hawaiians (NHs). Since the practice change focused on improving patient care quality and reducing readmissions for NHs, the project was strongly aligned with existing QMC values.

Complexity. Rogers (2003) defines complexity as the degree to which an innovation is perceived as difficult to understand and utilize. The staff that adopted the guideline recommendation included the NHH Project APRN, the NHH Project PNs, inpatient CMs, and QEC. The process to carry out timely PCP follow-up required collaboration among the aforementioned teams, and lead to the development of a streamlined process. The operation lacked complexity, as the process mainly targeted improved interdisciplinary communication.

Trialability. Trialability is the degree to which an innovation may be experimented with, or tested (Rogers, 2003). The evidence-based guideline and associated workflow process was

trialed during a four-month pilot project. Following each pilot month, the author met with staff to assess for operational issues. Due to the fluidity inherent to quality improvement initiatives such as the DNP project, modifications were continually made to better fit the needs of patients, staff, and the organization.

Observability. Observability is the degree to which the results of an innovation are made visible to the public (Rogers, 2003). To enhance observability of project progress and results, efforts were placed on addressing whether follow-up visit and readmission goals were being met at monthly meetings. Praising staff for high percentages of early PCP follow-up visits and/or reduced readmission rates was one approach utilized to enhance observability. In addition, if goals were not being met, discussing the concern of missed benchmarks during meetings served as an extrinsic motivating factor for future improvement.

Sustainability Plan

Based on Rogers' Diffusion of Innovations theory, the adoption of a practice change innovation is linked to three characteristics, (1) users' perceived benefits of the innovation, (2) the innovation's compatibility with the practice setting and population, and (3) innovation complexity (Keele, 2011). To sustain the practice change, efforts were made to demonstrate to stakeholders and interest groups its benefits, compatibility, and minimal complexity.

First, a well-designed evaluation plan was created to illustrate the practice change's impact through data findings. Second, efforts to promote compatibility and reduce complexity were attained through collaborating with stakeholders to develop implementation and evaluation processes that matched user needs and fit conveniently within existing workflows. Lastly, practice change sustainment will be promoted through ongoing result dissemination.

Sampling Plan

In this chapter section, details about the following sampling plan elements are presented:

(1) innovation users and their associated adopter categories, (2) social systems existent within the organization and practice setting, and (3) the project’s sample population and eligibility criteria.

Users of the innovation & adopter categories. Prior to practice change implementation, the author required buy-in from various stakeholders, including the NHH Project APRN and PNs, inpatient CMs, and QEC administration and staff. Adopter categories classify users based on their rate and willingness of innovation adoption (Rogers, 2003). Table 3.1 provides a list of the major users of the innovation, their associated adopter categories, and a description of their anticipated project contribution and organizational influence.

Table 3.1

Innovation Users’ Adopter Categories, Contribution, and Influence

Title	Adopter category	Project contribution & influence
Author, DNP Student	Innovator, Change Agent	1. Introduced the innovation to stakeholders and potential adopters 2. Lead planning, implementation, evaluation, and dissemination efforts 3. Low influence among the organization
NHH Project APRN	Early Adopter, Opinion Leader	1. Determined readmission risk scores and completed risk assessment reports 2. Clinical resource and support to PNs 3. High influence among the organization
NHH Project PNs Inpatient CMs QEC Staff	Early Majority	1. Scheduled appointments with QEC (CMs, PNs) 2. Point-of-contact for appointment scheduling (QEC) 3. Moderate influence among the organization
QEC Administration	Early Adopter	1. Key resource for timely PCP follow-up visits 2. High influence among the organization

Social systems. The DNP project took place at QMC, a private non-profit, acute medical care facility in Honolulu (QMC, 2017). It is the largest private hospital in Hawai‘i, and is licensed to operate 505 acute care beds and 28 sub-acute beds (QMC, 2017). The QMC has been honored with many awards illustrating patient care excellence, including Magnet Recognition.

With the project’s goal of improving the transition of patients from “hospital to PCP office”, there were two practice settings involved—the inpatient hospital units and the outpatient PCP clinics. Select medical-surgical units within QMC (e.g., Pauahi 4, Tower 9 Diamond Head, Pauahi 6) served as the “inpatient” practice setting. The QEC served as the main “outpatient” practice setting due to their collaboration with the DNP project and relative location within QMC. As a note, while QEC offered to provide timely PCP follow-up appointments to select high readmission risk individuals, patients were free to choose any PCP clinic as their follow-up location.

Sample. The DNP project’s target population was high readmission risk QMC patients. The accessible sample was high readmission risk NHH Project patients. Sample inclusion criteria consisted of the following (1) self-reported NH adult (18 years of age and older) and enrolled within the NHH Project program, and (2) clinically identified as “high” readmission risk according to the MultiCare Risk Assessment Tool (see Appendix A). Criteria that excluded an individual from the sample included (1) NHH Project program ineligibility, (2) under the age of 18, or (3) being a NHH Project patient clinically identified as “low” or “medium” readmission risk. Approximately 12 new patients were anticipated to meet sample inclusion criteria each month. With a four-month pilot period, it was projected that the sample size would equate to roughly 48 patients.

Recruitment and marketing plan. Stakeholder engagement was an ongoing process that continued until the project's completion. The author routinely engaged content experts through regular e-mail, phone, and in-person meetings. To engage and gain buy-in from frontline staff and QEC, numerous strategies were utilized, including organizing group meetings, harvesting the influence of opinion leaders, and supplementing events with occasional refreshments.

Evaluation Plan

In designing the evaluation plan for the DNP project, the Centers for Disease Control and Prevention (CDC) Framework for Program Evaluation in Public Health was used as a guide. The objective of this framework is to provide a practical method of planning, designing, and implementing a comprehensive evaluation (CDC, 2011).

Evaluation Type, Design, and Definitions

The DNP project's evaluation plan constituted a combination of both a "process" evaluation and an "impact" evaluation. Each evaluation type's design, data sources, data elements, and definitions are detailed in the following sub-sections. See Table 3.2 for a list of definitions relevant to the evaluation plan.

Table 3.2

Evaluation Plan Definitions

Term	Conceptual definition	Operational definition
1. Problem	a. High readmission rates among NHs	a. In 2015, NHs comprised 21% of QMC's total readmissions (Latimer, Fleming, & Paloma, 2016).
	b. Inadequate post-d/c PCP f/u among HRR NHH Project pts.	b. Approximately 37% of HRR NHH Project pts. received post-d/c PCP f/u; 63% did not.
2. Practice change	Early (2 business days) PCP f/u visit guideline	An early (2 business days) PCP f/u visit guideline for HRR NHH Project pts., operationalized through an interdisciplinary workflow process.
3. Sample population	--	NHH Project adult (18 years of age and older) pts. clinically identified as HRR.
4. Baseline (T1)	--	Measures taken during the four months prior to guideline implementation (April 1 st – July 31 st)
5. Comparison (T2)	--	Measures taken during the four months after implementation initiation (Aug. 1 st – Nov. 30 th)
6. "Process" outcome(s)	a. Guideline adherence & functionality	a. Guideline adherence & functionality measures: (1) % of pts. who received PCP f/u (2) % of pts. who did not receive PCP f/u (3) % of pts. who received "early" (within 2 business days) PCP f/u (4) Mean # of days to PCP f/u
	b. Post-pilot staff survey	b. Post-pilot staff survey assessing 4 domains: (1) Practice change utility (2) Practice change feasibility (3) Implementation barriers (4) Improvement recommendations
7. "Impact" outcome	a. Readmission rate	a. The overall readmission rate among HRR NHH Project patients.

Note. f/u = follow-up; d/c = discharge; HRR = high readmission risk; pts. = patients.

Process evaluation. Process evaluations are used to determine the quality of program activities and whether activities have been implemented as intended (CDC, n.d.). The DNP project's process evaluation plan had two components, (1) T1-T2 "process" testing and (2) a post-pilot staff survey. Since the practice change required frontline staff to implement a guideline, guideline adherence and associated workflow functionality was measured using T1-T2 "process" testing. The four "process" outcomes measured included (1) percentage of patients who received PCP follow-up, (2) percentage of patients who did not receive PCP follow-up, (3) percentage of patients who received "early" (within 2 business days) PCP follow-up, and (4) mean number of days to PCP follow-up. The data source that supplied relevant data elements to calculate the aforementioned measures was the NHH Project Data Tool.

The second intended component of the process evaluation was the post-pilot staff survey (see Appendix B). The survey was developed to assess frontline staff's responses to four project-related domains including, (1) practice change utility, (2) practice change feasibility, (3) implementation barriers, and (4) improvement recommendations. The survey included a combination of qualitative (open-ended) and quantitative (Likert scale) questions.

Impact evaluation. Impact evaluations are used to assess program effectiveness in achieving its ultimate goals (CDC, n.d.). The overarching goal of the DNP project was to reduce readmission rates for high readmission risk NHH Project patients. To measure the practice change's impact on readmission rates, T1-T2 "impact" testing was utilized. The baseline measure (T1) was the readmission rate four months before the guideline was implemented. The comparison measure (T2) was the readmission rate four months following guideline

implementation. The data source used to calculate T1-T2 “impact” measures was the QMC Readmission List.

T1-T2 sample population. For both the T1-T2 “process” and T1-T2 “impact” evaluations, the sample population at baseline (T1) differed from the comparison sample population (T2). Demographic characteristics of both sample populations were collected, compared, and included in the evaluation’s analysis. The demographic characteristics (data elements) that were collected included (1) “age” and (2) “gender”. The data source from which the data elements were retrieved was the NHH Project Data Tool.

Data Management Plan

The data management plan covers the intended methods for data collection and analysis.

Data sources & data elements. The three data sources that were projected to be used for project evaluation included (1) the NHH Project Data Tool, (2) the QMC Readmission List, and (3) a post-pilot staff survey. The “NHH Project Data Tool” data source was used for the T1-T2 “process” evaluation, and the “QMC Readmission List” data source was used for the T1-T2 “impact” evaluation. Lastly, the “post-pilot staff survey” data source was intended for use in the post-pilot “process” evaluation. See Table 3.3 for a list of each evaluation design’s data source and corresponding data elements or measures.

Table 3.3

“Process” and “Impact” Evaluation Designs, Data Sources, and Data Elements/Measures

Impact/Process evaluation	Evaluation design	Data source	Data elements/measures
1. Process	T1-T2	NHH Project Data Tool	a. % of pts. who received PCP f/u b. % of pts. who did not receive PCP f/u c. % of pts. who received “early” PCP f/u d. Mean # of days to PCP f/u
2. Process	Survey	Post-pilot staff survey	a. Practice change utility (Likert scale) b. Practice change feasibility (Likert scale) c. Implementation barriers (open-ended) d. Improvement recommendations (open-ended)
3. Impact	T1-T2	QMC Readmission List	a. Readmission rate

Note. f/u = follow-up; # = number; % = percentage; pts. = patients.

Data collection. The following sub-sections detail each evaluation designs’ expected data collection methods.

T1-T2 “process” evaluation. The NHH Project APRN and PNs were responsible for inputting data into the NHH Project Data Tool. The author utilized the inputted data to calculate four “process” measures (1a, 1b, 1c, and 1d) listed in Table 3.3, for T1-T2 comparison.

Post-pilot staff survey “process” evaluation. The author intended to distribute the self-developed post-pilot staff survey (see Appendix B) at the end of the four-month pilot. The survey was to be distributed to frontline staff involved in implementing the evidence-based guideline.

T1-T2 “impact” evaluation. To collect readmission-related data, the DNP project content experts provided the author with the QMC Readmission List. The list provided the data necessary to determine relevant impact measures.

Data analysis plan. Utilizing data elements collected from the NHH Project Data Tool and QMC Readmission List, the author calculated outcome measures necessary for “quantitative” T1-T2 comparison analysis. To analyze responses from the post-pilot staff survey, the author intended to tally Likert scale responses and calculate percentages for each selection. In regard to the open-ended written survey components, the author intended to analyze responses for recurrent themes.

Timeline

Figure 3.2 represents a Gantt chart illustrating key project-related tasks, extending from the author's proposal defense, to pilot completion, and findings dissemination.

Task	2017								2018				
	M	J	J	A	S	O	N	D	J	F	M	A	M
Submit Ch. 1-3 to Project Chair	5/15												
Submit Ch. 1-3 to Committee	5/22												
Submit proposal to QMC's IRB approved process for QI review													
Defend project proposal		6/19											
Stakeholder training and briefing													
Implement practice change													
Data collection													
Intra-implementation data review													
Monthly stakeholder meetings													
Distribute staff survey													
Analyze & interpret data													
Complete Ch. 4 & 5													
Submit Ch. 1-5 to Project Chair													
Submit documents to OGE												4/6	
Submit Ch. 1-5 to Committee													
Final defense													
Graduation													5/12
Disseminate findings													

Figure 3.2. DNP project timeline.

Resources

To determine whether the DNP project's implementation and evaluation plans upheld the CDC's Program Evaluation standard of "feasibility", all expected resources necessary for operationalizing the project were examined (CDC, 2011). Four resource categories were examined in-detail, including financial, human, time, and physical.

Financial

A relative advantage of the DNP project was the negligible financial burden associated with practice change implementation and evaluation. Purchases that were expected to take place throughout the duration of the project included (1) complimentary snacks for meetings with stakeholders and (2) office materials (e.g., paper, ink, staples, etc.) for surveys, informative documents, and project advertisement displays.

Human

Human capital was recognized as the most fundamental and valuable resource of the DNP project. The individuals who worked collaboratively to carry out the practice change included the NHH Project APRN and PNs, inpatient CMs, and QEC staff. Those involved in carrying out the evaluation plan and ensuring sufficient data collection were the NHH Project APRN, NHH Project PNs, and author. Following completion of the four-month pilot, the author analyzed and interpreted evaluation data, and made plans for result dissemination.

Time

The structured dates set forth by the University of Hawai'i at Mānoa's DNP program and Office of Graduate Education served as a guide in developing the DNP project's timeline (see Figure 3.2).

Physical

The QMC provided the physical resources required for the DNP project. The required physical resources (e.g., computers, phones, e-mail access, workspaces, etc.) for frontline and QEC staff were already available, thus the project did not require accessing additional resources. With the assistance of the DNP project content experts, arrangements were made for the author to utilize the NHH Project PN office space within QMC's Harkness building, as needed.

Human Subjects Considerations

The DNP project is a quality improvement initiative and has been designed to protect the rights of involved patients and staff. To ensure safety and ethical standards, the author integrated four ethical tenets (autonomy, non-maleficence, beneficence, and justice) into the project's plans.

Autonomy

Autonomy is a fundamental ethical principle encompassing self-determination (Rebar, Gersch, Macnee, & McCabe, 2011). This principle was integrated by categorizing the practice change recommendation as a "guideline" as opposed to a "protocol". Utilizing the term "guideline" allowed staff the option of opting out of the pilot without implication of wrongdoing. In regard to patients' right to autonomy, staff did not force patients into attending follow-up appointments, but simply assisted in PCP follow-up visit arrangement.

Non-maleficence & Beneficence

The ethical tenet of "non-maleficence" refers to doing no harm, while "beneficence" refers to doing what is righteous or beneficial (Gandall-Yamamoto, 2017). Both principles were upheld as the practice change served to improve patient outcomes through connecting them with

timely primary care services. The practice change provided the benefit of streamlining timely PCP follow-up without adding harm to patients or staff.

Justice

The ethical tenet of “justice” refers to the equal and fair treatment of involved parties (Gandall-Yamamoto, 2017). To uphold justice throughout the DNP project, patients and frontline staff were not coerced or penalized for lack of pilot participation.

IRB

The function of an institutional review board (IRB) is to ensure projects include procedures to protect the rights of patients (Rebar et al., 2011). Prior to implementation, the project proposal was submitted through QMC’s IRB-approved process for quality improvement review where it was deemed “Performance Improvement” and not presenting risks to human subjects. The author made further efforts to maintain patient protections, including (1) not randomizing patients to different treatment groups, (2) not involving vulnerable populations, (3) utilizing de-identified data, and (4) not adding additional risks beyond standard practice. The author also completed the university-required Collaborative Institutional Training Initiative course in “Human Subjects Protection”.

Summary

Using the Iowa Model to guide the contents of this chapter, the author detailed the development and refinement of the practice change innovation (step five) and outlined plans for project implementation (step six) and evaluation (step seven). An implementation plan was developed incorporating an interdisciplinary workflow process to implement the evidence-based early (2 business days) PCP follow-up visit guideline.

To evaluate the outcomes of the practice change, a “process” and “impact” evaluation was developed. The proposed “process” evaluation incorporated two components, (1) T1-T2 “process” testing to measure guideline adherence and workflow functionality and (2) a post-pilot staff survey. To evaluate the impact of the intended practice change on readmission rates, T1-T2 “impact” testing was utilized. The author also detailed steps taken to ensure human subjects protections throughout the project’s implementation and evaluation phases.

CHAPTER 4. RESULTS

Objectives

This chapter will cover the results of the Doctor of Nursing Practice (DNP) project, including a description of the sample, process and impact evaluation trend analyses, and a review of the project’s evolution following implementation. This chapter reflects step eight of the Iowa Model conceptual framework—monitoring and analyzing data.

Description of Sample

The project’s accessible sample consisted of high readmission risk Native Hawaiian Health (NHH) Project patients who were discharged within an 8-month duration extending from April 1st, 2017 to November 30th, 2017. For evaluation purposes, the sample was divided into two groups—a “baseline” group and a “comparison” group. The baseline group (T1) consisted of individuals discharged during the four months *prior* to guideline implementation (April 1st to July 31st), while the comparison group (T2) consisted of individuals discharged during the four months *after* guideline implementation (August 1st to November 30th). For comparison, the number of patients per group and associated demographic data (age, gender) were collected, and are displayed in Table 4.1.

Table 4.1

Baseline (T1) and Comparison (T2) Groups’ Demographic Data

	# of patients	Mean age	% Male	% Female	% Transgender
Baseline (T1)	75	53.8	78.7%	21.3%	0%
Comparison (T2)	87	53.6	71.3%	27.6%	1.1%

Trend Analyses for Process and Impact Measures

In order to analyze the progression and outcomes of the practice change, a “process” and “impact” evaluation was carried out. The results of both evaluations are further detailed in the following sub-sections.

Process Evaluation

The initial process evaluation plan consisted of two components (1) T1-T2 “process” testing to measure guideline adherence and workflow functionality, and (2) a post-pilot staff survey to analyze feedback regarding four practice change domains. While T1-T2 “process” testing was carried out as planned, the author and content expert (NHH Project APRN) collectively decided to opt for a post-pilot staff “focus group” in place of the survey.

T1-T2 “process” testing. Four “process” measures were collected at T1 and T2, including: (1) % of patients who received primary care provider (PCP) follow-up, (2) % of patients who did not receive PCP follow-up, (3) % of patients who received “early” (within 2 business days) PCP follow-up, and (4) mean number of days to PCP follow-up. These four “process” measures indirectly reflected both (a) staff adherence to the early (2 business days) PCP follow-up visit guideline, as well as (b) the workflow process’s functionality in facilitating early PCP follow-up in comparison to baseline measures (current standard). See Table 4.2 for a comparison of “process” measure results following pre-implementation (T1) and post-implementation (T2).

As displayed in Table 4.2, all four “process” measures improved following practice change implementation. Major data findings included: (1) a 16% increase in patients who received any PCP follow-up, (2) an 11% increase in patients who received “early” PCP follow-

up within 2 business days, and (3) a 1.7 day decrease in mean days to PCP follow-up. These findings illustrated that the practice change was implemented as intended, and likely facilitated an improvement in PCP follow-up (process) measures.

Table 4.2

T1-T2 Process Evaluation: General Findings

	% Received any PCP f/u	% Did not receive PCP f/u	% Received “early” PCP f/u	Mean # of days to PCP f/u
Baseline (T1)	48%	52%	13%	6.6 days
Comparison (T2)	64%	36%	24%	4.9 days
Change Δ	+16%	-16%	+11%	-1.7 days

Note. f/u = Follow-up.

With the focal point of the practice change being the workflow process made in collaboration with the Queen Emma Clinic (QEC), the T1-T2 “process” evaluation was expanded to compare PCP follow-up data of QEC patients with data of patients who sought “follow-up elsewhere” (FUE). Table 4.3 lists “process” measures comparing QEC with other PCP follow-up locations grouped collectively—denoted by “FUE”. Key findings identified included: (1) the number of patients who sought follow-up at QEC and FUE increased by 14 and 6 patients, respectively, and (2) the mean number of days to PCP follow-up at both QEC and other locations (FUE) was successfully reduced by 1.5 days.

Table 4.3

T1-T2 Process Evaluation: Queen Emma Clinic versus Follow-up Elsewhere

	# of QEC pts.	# of FUE pts.	QEC mean # of days to PCP f/u	FUE mean # of days to PCP f/u
Baseline (T1)	6	30	6.0 days	6.7 days
Comparison (T2)	20	36	4.5 days	5.2 days
Change Δ	+14	+6	-1.5 days	-1.5 days

Post-pilot staff focus group. The second component of the “process” evaluation was the post-pilot staff focus group, which took place in late December 2017. Frontline staff that took part in the focus group included the: (1) NHH Project patient navigators (PNs), (2) NHH Project APRN, and (3) QEC secretary. While efforts were made to include the case management (CM) team in the focus group, CM staff was unable to be reached. Despite survey distribution being rescinded, the four practice change domains addressed in the survey were preserved (i.e., utility, feasibility, implementation barriers, and improvement recommendations) as the author used the survey questions as discussion prompts (see Appendix B). Frontline staff feedback was condensed into key points, and is presented in Table 4.4.

Table 4.4

Post-pilot Staff Focus Group Key Points

Domain	Key points
Utility	<ul style="list-style-type: none"> • The practice change was a useful approach to reducing preventable readmissions. • Getting patients into their PCP allowed for medication reconciliation—which is key in preventing readmissions. • Scheduling early PCP f/u appointments helped prevent “losing” select patients to f/u (i.e., homeless patients). • The workplace relationship and agreement made with QEC was critical to getting patients into an early appointment. • The workflow process improved communication between the inpatient and outpatient settings.
Feasibility	<ul style="list-style-type: none"> • The practice change was a simple and straightforward process. • The practice change made “minimal” workflow additions. • The practice change fit well within the overarching NHH Project.
Barriers	<ul style="list-style-type: none"> • Lack of patient transportation to and from appointments. • Communication challenges (e.g., patient unable to be reached). • Select staff was unaware of the workflow process/agreement with QEC.
Recommendations	<ul style="list-style-type: none"> • Scheduling “specialist” appointments at a community health center generally requires a lengthy wait-time, thus developing similar agreements with specialists may be beneficial. • Staff awareness of the practice change could’ve been improved. • The practice change should be expanded to all high readmission risk QMC patients.

Note. f/u = follow-up.

Impact Evaluation

Table 4.5 displays T1-T2 “impact” evaluation data, and compares readmission rates of various sample groupings at T1 and T2. Column 1 displays the “overall” readmission rates of “all high readmission risk NHH Project patients”; the readmission rate at both T1 and T2 for this grouping was 24%. While it was anticipated that the “comparison” group would have presented with a lower readmission rate based on successful “process” evaluation findings, the measure remained unchanged.

The second column represents the readmission rates of patients who did not receive PCP follow-up after discharge. As expected, this select grouping at both T1 and T2 presented with the highest readmission rates of all groupings at 33% and 45%, respectively. For patients who received “any PCP follow-up”, the readmission rate remained relatively stable at T1 and T2.

Column 4 represents the readmission rates of those who received “early” PCP follow-up within 2 business days. Despite there being only two readmissions during T1 and one readmission during T2 among this grouping, due to low sample size, the readmission rates appeared markedly different. See Figure 4.1 for a bar graph representation of the aforementioned T1-T2 readmission rates.

Table 4.5

T1-T2 Impact Evaluation: General Readmission Rates

	“All HRR patients” readmission rate	“No PCP f/u” readmission rate	“Any PCP f/u” readmission rate	“Early PCP f/u” readmission rate
Baseline (T1)	24%	33%	14%	20%
Comparison (T2)	24%	45%	13%	5%
Change Δ	0%	+12%	-1%	-15%

Note. HRR = high readmission risk; f/u = follow-up.

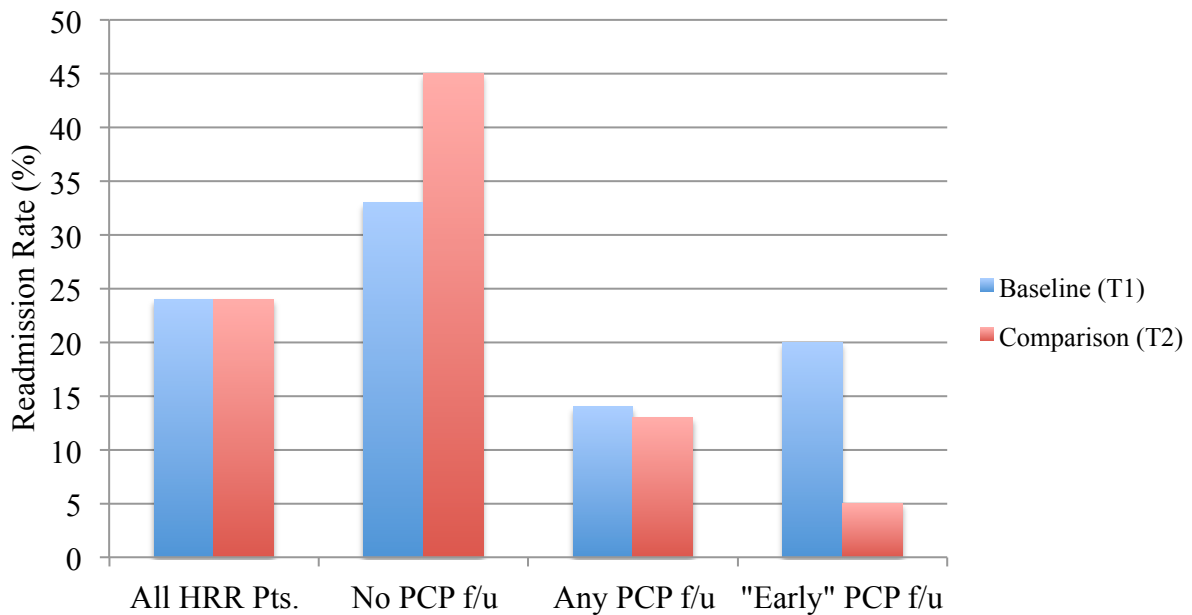


Figure 4.1. T1-T2 Impact evaluation: General readmission rates in bar graph form.

HRR = high readmission risk; f/u = follow-up.

The “impact” evaluation was expanded to include readmission rate comparison between QEC patients, and patients who sought FUE (see Table 4.6). While QEC readmission rates were higher than FUE readmission rates at both T1 and T2, both QEC and FUE readmission rates decreased by 2% following practice change implementation. Of note, QEC provides care to a high percentage of underserved and vulnerable patients; the unique needs and disease severity of these individuals may have contributed to the clinic’s rates being higher than FUE rates.

Table 4.6

T1-T2 Impact Evaluation: Queen Emma Clinic versus Follow-up Elsewhere

	QEC readmission rate	FUE readmission rate
Baseline (T1)	17%	13%
Comparison (T2)	15%	11%
Change Δ	-2%	-2%

Project Evolution

With the DNP project serving as a quality improvement initiative, ongoing assessment and associated modifications were anticipated. The following sub-sections detail the project's evolution with respect to (1) expected versus actual outcomes, and (2) practice change facilitators versus barriers.

Expected versus Actual Outcomes

The DNP project's expected versus actual outcomes in relation to its: (1) timeline, (2) training, (3) stakeholder team, (4) implementation, and (5) evaluation are listed in Table 4.7, and further discussed in this section.

As planned, the four-month implementation duration extended from August 1st to November 30th. Training and briefing was held for all frontline staff prior to practice change implementation. While the author led in-person trainings for the NHH Project and QEC staff, the manager of CM preferred to brief frontline CM staff on the workflow process independently.

In regard to stakeholders, a project coordinator was hired to lead the NHH Project team following the project director's retirement in June. In late September, one of four NHH Project PNs took an extended leave of absence, and thus was unable to participate in the remaining implementation duration. The NHH Project also underwent major organizational change during the implementation phase, most notably becoming an official permanent program at QMC in the Care Coalition department.

Table 4.7

Expected versus Actual Outcomes of the DNP Project

	Expected outcomes	Actual outcomes
Timeline	<ul style="list-style-type: none"> • T1 = April 1st – July 31st • T2 = Aug. 1st – Nov. 30th 	<ul style="list-style-type: none"> • T1 = April 1st – July 31st • T2 = Aug. 1st – Nov. 30th
Training	<ul style="list-style-type: none"> • Frontline staff training to occur during June/July. 	Training and briefing session(s) held for: <ul style="list-style-type: none"> • NHH Project staff – July 3rd, Aug. 1st • CM Staff – ≈July 7th, ≈July 26th (led by manger of CM) • QEC staff – Aug. 1st
Stakeholders	<ul style="list-style-type: none"> • NHH Project director retired, and a new project coordinator will be hired. • NHH Project to continue with 3-year pilot. 	<ul style="list-style-type: none"> • NHH Project coordinator hired in June. • NHH Project became a permanent program at QMC, ending the pilot early. • One PN took a leave of absence from Sept. to Dec.
Implementation	<ul style="list-style-type: none"> • NHH Project APRN will utilize seven specific components of the MultiCare Risk Assessment Tool to assess readmission risk. 	<ul style="list-style-type: none"> • NHH Project coordinator made the executive decision to use all 12 components of the MultiCare Risk Assessment Tool. • Hospital unit “Pauahi 4” was temporarily closed from Sept. 7th – Sept. 27th.
Evaluation	<ul style="list-style-type: none"> • T1-T2 “process” and “impact” measures will improve following practice change implementation. • A post-pilot staff survey will be distributed to frontline staff. 	<ul style="list-style-type: none"> • All T1-T2 “process” measures improved. • Overall readmission rate for “all HRR patients” (impact measure) remained unchanged. • Both QEC and FUE readmission rates (impact measures) decreased by 2%. • The survey was replaced by a post-pilot staff focus group; CM did not participate.

Note. HRR = high readmission risk.

In October, the NHH Project coordinator made the executive decision to assess patients’ readmission risk using all 12 components of the MultiCare Risk Assessment Tool, rather than seven specific components decided upon by the former NHH Project director. The NHH Project coordinator’s objective in updating the risk assessment procedure was to align staff efforts with literature evidence, and to more accurately identify high readmission risk patients. This change is reflected in Appendix D, in which the NHH Project APRN’s “Risk Assessment Report” template

was updated to include the 12 components. Utilizing the updated assessment approach resulted in nine additional patients being identified as high readmission risk during October and November combined. It should also be noted that during the implementation phase, a major hospital unit (Pauahi 4), was temporarily closed from September 7th to September 27th.

Following implementation of the practice change, all “process” evaluation measures improved. To promote topic discussion and align activities with the existing workplace culture, a post-pilot staff focus group was conducted in place of a survey. The NHH Project PNs, NHH Project APRN, and QEC secretary took part in the discussion. Frontline CM staff was unable to be reached for participation. In regard to “impact” evaluation data, while the overall readmission rate for “all high readmission risk patients” remained unchanged, both QEC and FUE readmission rates were reduced by 2%.

Facilitators versus Barriers

Throughout the DNP project, the author encountered staff, situations, and events that either facilitated or hindered the project’s progress. Table 4.8 lists those influences in relation to three project phases: (1) pre-implementation, (2) implementation, and (3) evaluation.

Table 4.8

Facilitators and Barriers of the DNP Project

Phase	Facilitators	Barriers
Pre-implementation	<ul style="list-style-type: none"> • QEC administration assisted the author in coordinating the QEC staff training session. • NHH Project coordinator and NHH Project APRN supported the author's training efforts. • QEC and NHH Project frontline staffs were actively involved during in-person training session(s). 	<ul style="list-style-type: none"> • Since the manager of CM declined the offer of an in-person training session and opted to brief CM staff independently, the author was unable to assess CM staff comprehension and feedback regarding the practice change.
Implementation	<ul style="list-style-type: none"> • Attending weekly and monthly meetings with the NHH Project team allowed the author to develop a strong working relationship with NHH Project staff. • Strong support from the NHH Project coordinator and NHH Project APRN helped maintain NHH Project staff's accountability and involvement throughout implementation. • QEC administrative staff offered consistent support to ensure early appointments were available to requesting frontline staff. 	<ul style="list-style-type: none"> • While monthly electronic communication with the manager of CM took place to assess CM staff needs/feedback, it was challenging to gauge their actual involvement and commitment to the practice change without face-to-face interaction.
Evaluation	<ul style="list-style-type: none"> • NHH Project coordinator and NHH Project APRN provided de-identified data retrieval support to the author. • NHH Project frontline staff worked collaboratively with the author to ensure data accuracy. • NHH Project PNs, NHH Project APRN, and QEC secretary willingly took part in the post-pilot staff focus group. 	<ul style="list-style-type: none"> • CM staff did not participate in the post-pilot staff focus group.

Summary

Chapter 4 covered the DNP project's results, which incorporated step eight (monitoring and analyzing data) of the Iowa Model. Several evaluation trends were identified following data analysis, including: (1) increases in "any" and "early" PCP follow-up percentages, (2) a decrease in the mean number of days to PCP follow-up, (3) no change in overall readmission rate for "all high readmission risk patients", and (4) a 2% readmission rate reduction for both QEC and FUE patients. The post-pilot focus group identified that frontline staff held generally favorable views of the project, in addition to their perceived barriers and recommendations. Lastly, the anticipated versus actual outcomes of the project were reviewed, as well as the project's influences that either facilitated or hindered project progress.

CHAPTER 5. DISCUSSION

The objective of this chapter is to discuss and interpret the findings identified throughout the Doctor of Nursing Practice (DNP) project's three phases—pre-implementation, implementation, and evaluation. Also discussed is the DNP project's integration of the eight DNP essentials, which represent the foundational competencies of doctoral-level nursing practice. The chapter concludes with a review of the author's plans for result dissemination, conveying the final step of the Iowa Model conceptual framework.

Interpretation of Findings

The purpose of the DNP project was to improve timely primary care provider (PCP) follow-up for high readmission risk Native Hawaiian Health (NHH) Project patients through the implementation of an early (2 business days) PCP follow-up visit guideline. The guideline was operationalized using a modified workflow process involving staff from the Queen Emma Clinic (QEC), NHH Project, and inpatient case management (CM). The following sub-sections discuss the project's implications in relation to distinct phases of the project's progression.

Pre-implementation

During pre-implementation, the author presented the practice change innovation to stakeholders, with the goal of gaining stakeholder buy-in. Rogers' (2003) innovation characteristic analysis assisted in developing a practice change innovation that was useful, compatible, low in complexity, trialable, and observable. Content experts and opinion leaders provided extensive support to the author during the project's planning phase. Building strong working relationships with these respected individuals assisted significantly in furthering the project through this planning and preparatory phase.

Challenges identified during the pre-implementation phase included the issue of stakeholder time constraints and DNP project hesitations. During the planning phase of the project, meetings with prospective stakeholders were frequently arranged. Meetings were often arranged with high-level managers with time-limited schedules, thus the author relied on the support and position of content experts to garner meeting participation.

Implementation

A key observation identified following implementation was that routine check-ins with administration and frontline staff helped to (1) strengthen working relationships with stakeholders, (2) increase frontline staff accountability, and (3) showcase the author's commitment to the project. The author prioritized weekly office visits with the NHH Project team, and monthly electronic check-ins with QEC and inpatient CM. During check-ins, the author assessed for any project concerns, needs, or improvement recommendations. The author also generated monthly DNP project progress reports that were distributed to all stakeholder teams and presented during NHH Project monthly meetings. Support from the NHH Project APRN and NHH Project coordinator was essential in maintaining NHH Project patient navigators' (PNs) prioritization of early PCP follow-up appointment scheduling.

Evaluation

A "process" and "impact" evaluation was conducted to measure practice change outcomes. The "process" evaluation consisted of two components, (1) a post-pilot staff focus group and (2) T1-T2 "process" testing. The post-pilot staff focus group elicited staff feedback relevant to four project-related domains—utility, feasibility, barriers, and recommendations. Frontline staff collectively agreed that the project was a useful and feasible approach toward

reducing preventable readmissions. A project barrier cited during the focus group was the issue of select staff unawareness of the practice change. This finding highlighted the importance of ensuring staff awareness prior and during implementation to facilitate implementation success. Actions that could have been utilized to enhance staff awareness of the practice change include (1) holding additional in-services with inpatient CM, nursing, social work, and other associated departments, and (2) using mass communication mediums (e.g., e-mail, flyers) to raise project awareness and keep staff informed on project updates.

Moreover, T1-T2 “process” testing was conducted to determine (1) staff adherence to the early PCP follow-up guideline and (2) the workflow process’s functionality in facilitating early PCP follow-up. All “process” measures improved following practice change implementation, including an increase in “any” and “early” PCP follow-up percentages and a decrease in the mean number of days to PCP follow-up. The implications of these improvements are that (1) staff adhered to the guideline and implemented the workflow process as intended and (2) the workflow process possessed functionality in facilitating early PCP follow-up. It was anticipated that if “process” measures improved following implementation, readmission rates (“impact” measures) would resultantly improve.

An “impact” evaluation incorporating T1-T2 testing was conducted to determine the practice change’s impact on readmission rate. The evaluation identified that following implementation, the overall readmission rate for “all high readmission risk patients” remained unchanged at 24%. Additionally, readmission rate increased for patients who “did not receive PCP follow-up”, and decreased for patients who received “any” and/or “early” PCP follow-up. Lastly, QEC and follow-up elsewhere (FUE) readmission rates both decreased by 2 percent. The

implication of these findings is that while the overall readmission rate remained unchanged following implementation, it is plausible that rates would have risen at T2 had the project not been implemented.

Limitations

The DNP project had several limitations, including those inherent to quality improvement initiatives. First, the practice change was implemented in a fluid environment, in the absence of controlled variables and constant conditions. Second, the project's marginal sample size limited the ability to draw reliable inferences from evaluation data. Despite these limitations, trends were explicitly observed, thus warranting consideration of practice change sustainment and expansion.

Future Plans and Implications

With the NHH Project joining the Care Coalition department, the NHH Project team and Care Coalition leadership collectively decided to maintain evidence-based "early" PCP follow-up goals. The Care Coalition also plans to develop additional agreements and working relationships with affiliated clinics, similar to the agreement made with QEC. Based on these plans, the essence of the DNP project will be sustained through select Care Coalition efforts.

An incidental project evaluation finding was the high rates of (1) homelessness, (2) substance use, and/or (3) mental illness among patients within the "did not receive PCP follow-up" category. While extensive efforts were made to organize early PCP follow-up for these individuals, often their psycho-socio-economic circumstances prevented them from attending scheduled follow-up appointments. This trend revealed that the traditional PCP follow-up model inappropriately matched their unique needs and lifestyles. Based on this discovery, innovative

approaches to PCP follow-up and health maintenance for vulnerable populations, especially those with complex psychological and social issues, should be explored.

Plans for Dissemination

To effectively target relevant interest groups and audiences, DNP project findings will be disseminated in a variety of settings. The author plans to utilize group meetings, state and national conference presentations, and publications as dissemination mediums. According to the University of Hawai‘i at Mānoa’s (UHM) DNP program requirements, the author will submit the final DNP project report to project committee members for review. The author’s final DNP project defense will take place at UHM on March 14th, 2018. Following a successful defense, the final DNP project report will be submitted to the Office of Graduate Education by April 6th, 2018.

DNP Essentials

The American Association of Colleges of Nursing’s (AACN) DNP essentials are the eight foundational competencies fundamental to advanced practice nursing at the doctoral level (AACN, 2006). All academic programs conferring the DNP degree are required to incorporate these core competencies into their curriculum. Table 5.1 details the author’s integration of the DNP essentials into the DNP project, with a list of associated activities per essential that were completed during the course of the project’s development, implementation, and evaluation.

Table 5.1

DNP Essentials & DNP Student Related Activities

DNP essential	DNP student related activities
I. Scientific underpinnings for practice	<ul style="list-style-type: none"> Planned, implemented, and evaluated an EBP project aimed at reducing preventable readmissions. Frameworks utilized: Iowa Model, CDC Framework for Program Evaluation in Public Health, & Rogers' Diffusion of Innovations theory.
II. Organizational and systems leadership for QI and economics	<ul style="list-style-type: none"> Identified triggers necessitating a QI readmission reduction practice change. Employed leadership skills in a variety of situations/settings (e.g., interdisciplinary collaboration, public speaking, leading meetings/trainings). Designed a cost-effective practice change that supported the NHH Project and QMC's goals, values, and mission, and promoted cost-savings.
III. EBP/translation science	<ul style="list-style-type: none"> Conducted two extensive literature review and syntheses on the topic of readmission rate reduction interventions. Designed/implemented a practice change aimed at reducing readmission rates and improving PCP f/u for HRR patients based on literature recommendations. Designed/conducted a "process" and "impact" evaluation to capture and analyze data relevant to the practice change's utility, functionality, & impact. Disseminated findings during meetings and nursing grand rounds presentations; developed a dissemination plan to broaden public exposure to project findings.
IV. Information systems/technology	<ul style="list-style-type: none"> Utilized strategic electronic literature searching techniques. Extracted relevant data from data tools and lists. Used a spreadsheet application to analyze data. Provided recommendations for improving existing data tools.
V. Health care policy & ethics	<ul style="list-style-type: none"> Advocated for an early PCP follow-up guideline aimed at reducing preventable readmissions and improving health outcomes for HRR NHs.
VI. Inter-professional collaboration	<ul style="list-style-type: none"> Led in-person training sessions for inter-professional staff. Collaborated with administration and frontline staff of various teams/departments (i.e., QEC, NHH Project, inpatient CM, Care Coalition). Enhanced inter-professional collaboration via the implementation of an interdisciplinary workflow process.
VII. Prevention and population health	<ul style="list-style-type: none"> Identified PCP follow-up and readmission trends among NHH Project pts. Educated staff on literature recommendations promoting early PCP follow-up as an effective readmission reduction intervention for HRR patients. Identified implications regarding the relationship between psycho-socio-economic status and health maintenance behaviors among vulnerable NHH Project patients.
VIII. Advanced nursing practice & education	<ul style="list-style-type: none"> Designed, implemented, and evaluated an evidence-based DNP Project. Educated, trained, and supported an inter-professional network of frontline staff involved in implementing the early PCP follow-up guideline and associated workflow process.

Note. EBP = evidence-based practice; CDC = Centers for Disease Control and Prevention; QI = quality improvement; f/u = follow-up; HRR = high readmission risk; NHs = Native Hawaiians; pts. = patients.

Summary

Chapter 5 interpreted and discussed various findings identified throughout the DNP project. The author acknowledged the key role content experts and opinion leaders played in facilitating project planning, implementation, and evaluation. In regard to the project's evaluation findings, the practice change successfully improved "process" measures, including (1) increasing the percentage of patients who received "any" and/or "early" PCP follow-up, and (2) reducing the average days to PCP follow-up. These "process" findings substantiated the practice change's utility and functionality. Feedback gathered from the post-pilot staff focus group identified that staff held generally favorable views of the project, and revealed select staff unawareness of the practice change as a project barrier.

In regard to "impact" measures, while the overall readmission rate for "all high readmission risk patients" remained unchanged, the readmission rate increased for patients who "did not receive PCP follow-up", and decreased for patients who received "any" and/or "early" PCP follow-up. Additionally, readmission rates for QEC and FUE both decreased by 2%. These findings suggest that the practice change's impact likely prevented the overall readmission rate from increasing.

The author also discussed future project plans and implications, and the DNP project's integration of AACN's eight DNP essentials. The final component of the chapter incorporated the author's plan for findings dissemination, concluding the final step of the Iowa Model.

APPENDIX A

MultiCare Risk Assessment Tool

A: MultiCare Risk Assessment Tool and Strategies – Acute Care

Check the following that are true.	Points
Age 80 or older	
No funding source	
More than 4 Chronic Conditions	
Active Behavioral / psychiatric health issue	
Six or more prescribed medications	
Two or more hospitalizations within the past 6 months	
Readmitted within 30 days	
Inadequate support system	
Low health literacy	
Documented history of non adherence to the therapeutic regimen	
Require assistance with ADL's	
Substance / ETOH abuse	
Take the sum of the points and enter the total	

Score	
Low	0 to 2
Medium	2 to 4
High	4 to 6
Intensive	6 and above

APPENDIX B

Post-Pilot Staff Survey

**Early (2 Business Days) PCP Follow-up for High Readmission Risk NHH Project Patients:
A Post-Pilot Staff Survey**

1. Scheduling early (2 business days) PCP follow-up appointments at the Queen Emma Clinic for “high readmission risk” NHH Project patients was a simple process.

Strongly Agree Agree Neutral Disagree Strongly Disagree

2. Scheduling early (2 business days) PCP follow-up appointments for “high readmission risk” NHH Project patients is a useful practice change that likely reduces preventable readmissions.

Strongly Agree Agree Neutral Disagree Strongly Disagree

3. The early (2 business days) PCP follow-up visit guideline should be expanded to all discharged QMC patients identified as “high readmission risk”.

Strongly Agree Agree Neutral Disagree Strongly Disagree

4. Please list any barriers to implementing the early (2 business days) PCP follow-up visit guideline (e.g., institutional barriers, patient barriers, personal barriers, etc.):

5. Please provide feedback on the overall pilot project (e.g., areas for improvement, suggestions, and recommendations)

APPENDIX C

The NHH Project APRN's "Risk Assessment Report" Template

Native Hawaiian Behavioral Health Initiative Project

D: Patient meets criteria for Native Hawaiian Behavioral Health Initiative Pilot Project. Criteria is as follows: 1) Patient identifies as Native Hawaiian 2) Patient agrees to be included and is able to participate in Community Navigation Program 3) Patient will discharge to Home, Foster Home, Shelter, Street/Homeless on Oahu.

A: Patient's chart reviewed and contact made between patient and Native Hawaiian Patient Community Navigator.

R: Patient Community Navigator follow-up planned if patient continues to meet screening criteria at time of discharge.

READMISSION RISK SCORE = X (score of 4 or higher = high readmission risk)

Score Components (yes/no)

1. More than 4 chronic conditions =
2. Six or more prescribed medications =
3. Two or more hospitalizations within the past 6 months =
4. Inadequate support system =
5. Low health literacy =
6. Require assistance with ADLs =
7. Drug abuse =
8. ETOH abuse =

NEW MEDICATIONS (yes/no)

1. Insulin =
2. Anticoagulant =
3. Antibiotic =

SUPPLEMENTAL NOTES:

APPENDIX D

The NHH Project APRN's "Risk Assessment Report" Template (Updated)

Native Hawaiian Behavioral Health Initiative Project

D: Patient meets criteria for Native Hawaiian Behavioral Health Initiative Pilot Project. Criteria is as follows: 1) Patient identifies as Native Hawaiian 2) Patient agrees to be included and is able to participate in Community Navigation Program 3) Patient will discharge to Home, Foster Home, Shelter, Street/Homeless on Oahu.

A: Patient's chart reviewed and contact made between patient and Native Hawaiian Patient Community Navigator.

R: Patient Community Navigator follow-up planned if patient continues to meet screening criteria at time of discharge.

READMISSION RISK SCORE = X (score of 4 or higher = high readmission risk)

Score Components (yes/no)

1. Age 80 or older =
2. No Funding Source =
3. More than 4 chronic conditions =
4. Active behavioral/psychiatric health issue =
5. Six or more prescribed medications =
6. Two or more hospitalizations within the past 6 months =
7. Readmitted within 30 days =
8. Inadequate support system =
9. Low health literacy =
10. Documented history of non-adherence to the therapeutic regimen =
11. Require assistance with ADLs =
12. Drug abuse =
13. ETOH abuse =

NEW MEDICATIONS (yes/no)

1. Insulin =
2. Anticoagulant =
3. Antibiotic =

SUPPLEMENTAL NOTES:

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