

EXPLORING THE EXPERIENCE OF FACILITATION WITH IMPLEMENTING
EVIDENCE-BASED PRACTICE IN A NEONATAL INTENSIVE CARE UNIT

by

Jenny Quinn

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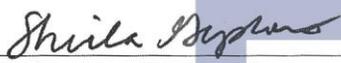
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DEDICATION

This endeavor wouldn't be possible without the love and support from my husband and best friend, Russ. Your humility and compassion for others compel me to be a better person and nurse. Those moments when I thought I couldn't keep going in my PhD program, you gently nudged me and showed me I was capable of anything. I will forever be grateful to you; words can't express the amount of love you have brought to my life, support towards any undertaking I immerse myself in, and never-ending belief that I can accomplish whatever I set out to do. And I'm ready to enjoy our lives again without any homework!

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ABSTRACT

Background: Literature supports that it takes approximately 17 years for 14% of original research to be translated and implemented into clinical practice. This dissemination gap requires researchers and clinicians to consider efficient and effective methods to integrate evidence-based practice (EBP) into a clinical setting. Furthermore, literature supports that EBP improves the quality of care and health outcomes, reduces healthcare cost, and improves clinician variation in practice. Despite the supporting evidence, EBPs are inconsistently implemented by nurses and other clinicians throughout the U.S. Facilitation has been described as one implementation strategy to speed adoption and implementation of evidence into clinical settings. While previous research focuses on facilitation to increase the adoption and implementation of EBP into a clinical setting, facilitation has not been described in the literature as an implementation strategy in a neonatal intensive care unit (NICU).

Purpose: The purpose of this qualitative descriptive (QD) study was to categorize, describe, and discover essential features of the strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators.

Methods: In this QD study, one in-depth semi-structured phone interview was conducted with a purposive sample of neonatal healthcare clinicians and external facilitators. Participants' shared their experiences related to the strategy of facilitation while implementing an EBP during the California Perinatal Quality Care (CPQCC) Antibiotic Stewardship Collaborative in their NICU. Interviews were transcribed, coded and data were analyzed using directed content analysis.

Results: Five themes emerged to address facilitation as an implementation strategy in the context of integrating an EBP in a NICU. The five themes addressed: 1) facilitated change management; 2) unit and organization receptivity; 3) evaluation strategies; 4) supportive culture; and 5) facilitator stewardship. Results from this study provide insights into influencing barriers and drivers, and contextual factors that impacted the success of implementation. Study findings also add to the body of implementation science on facilitation in a NICU setting.

CHAPTER I: INTRODUCTION

Chapter 1 describes the background and significance of the problem, nursing philosophy that informed the study, and description of the conceptual framework that provided underpinnings for this dissertation study. The chapter presents an in-depth discussion on the construct of facilitation as an implementation strategy to support the implementation of evidence-based practice (EBP) and a table of essential terms and definitions used in the field of implementation science. The chapter also includes a discussion on the focus of the dissertation study and identified EBP change and concludes with a description of the study aims and associated research questions to assist in exploring the construct of facilitation.

Background and Significance

The landmark report by the Institute of Medicine (IOM, 2001) “Crossing the Quality Chasm” states that care delivery should be grounded in the best scientific evidence, yet the integration of evidence into clinical settings continues to pose challenges and barriers to researchers and clinicians. The dissemination gap in translating research into practice are best described by the sheer number of years this takes -- approximately 17 years for 14% of original research to be translated and implemented into clinical practice (Green, 2008). Of the 17 years, it takes an average of nine years to implement evidence into clinical practice that are based on systematic reviews, eventual research that makes it to textbooks, or becomes clinical practice guidelines (Balas & Boren, 2000). See Figure 1 for a graphical representation of the research-to-practice gap.

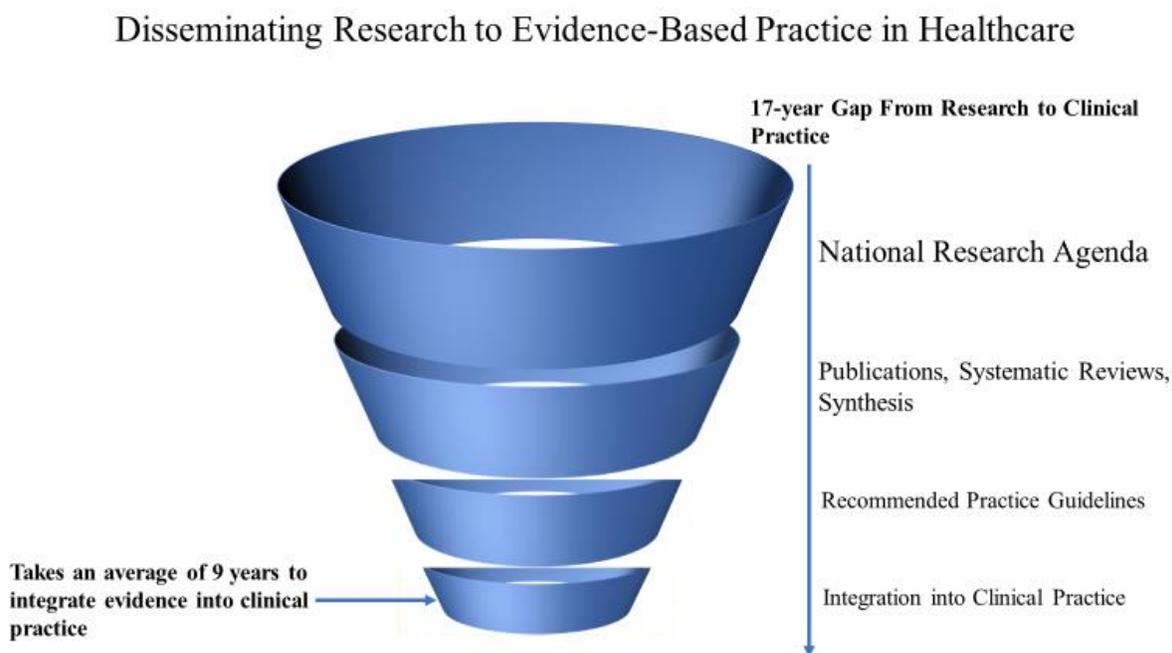


FIGURE 1. Disseminating research to evidence-based practice in healthcare. (Adapted from Balas & Boren, 2000; Green, 2008)

A recent study of chief nurse executives estimated that 30-40% of quality benchmarks in U.S. hospitals do not meet national standards (Melnyk et al., 2016). One explanation is the low implementation of EBP (Melnyk et al., 2016). EBP is a problem-solving method that integrates clinical expertise, best available research, and patient preferences and values into the clinical decision-making process (Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012). Implementation of EBP improves the quality of care and health outcomes, reduces healthcare cost, and improves clinician variation in practice (McGinty & Anderson, 2008; Dearing & Kee, 2012). Furthermore, EBP enhances individual and organizational reliability (Melnyk, 2012). Despite the supporting evidence, EBPs are inconsistently implemented by nurses and other clinicians throughout the U.S. (Pravikoff, Pierce, & Tanner, 2005; Melnyk et al., 2012). From a healthcare cost perspective, an estimated \$550 billion could have been saved in 2010 had

effective implementation strategies been used (IOM, 2010). While implementation strategies are not a new concept, because of the research-to-practice gap and healthcare costs associated with this gap, it is becoming more common to develop and evaluate implementation strategies more carefully (Addie, Olson, & Beachy, 2016).

Implementing evidence into clinical settings previously had been considered a linear process; however, research now demonstrates that practice change or program implementation are nonlinear, iterative, complex, and dynamic (Bertram, Blase, Shern, Shea, & Fixsen, 2011). Nilsen (2015) describes that “implementation is a multidimensional phenomenon, with multiple interacting influences” (p. 5). Furthermore, the complexities of individuals and organizations require multifaceted and collaborative approaches to improve successful implementation of evidence (Van de Ven & Johnson, 2006; Fixsen, Blase, Naoom, Van Dyke, & Wallace, 2009). Facilitation has been described as one implementation strategy to speed adoption and implementation of evidence into clinical settings (Dogherty, Harrison, Graham, Vandyk, & Keeping-Burke, 2013; Harvey & Kitson, 2016).

Literature has shown that facilitation as an implementation strategy has been successful with implementing EBP in primary care settings, large U.S. healthcare systems (e.g., Veterans Administration [VA] and Kaiser Permanente), and program implementation in countries such as Canada and Vietnam (Baskerville, Liddy, & Hogg, 2012; Parchman et al., 2013; Bokhour, et al., 2015; Gold et al., 2015; Kilbourne et al., 2015).

Nursing Philosophy

Philosophies inform and represent one’s ontological and epistemological beliefs, values, and ethics unique to the nursing discipline and provide a framework that influences research and

practice (Fawcett, 2005). Ontology is the substance of a discipline and an important focus in which to generate nursing knowledge. Ontological philosophy is the study of nursing reality – what is true, what is the reality, what exists in nursing (Reed, 2011). Epistemology is the study of knowledge – the process in which there is a generation of knowledge and considered to be truths in the discipline (Reed, 2011). Fawcett’s Reciprocal-Interaction worldview and the philosophy of constructionism inform the investigator’s ontological and epistemological views.

In the Reciprocal-Interaction worldview, people are viewed as holistic, active beings, and parts are considered in the context of the whole (Fawcett, 1993). There are reciprocal interactions that occur between people, and their environment and reality is multifaceted, situationally dependent, and relative (Fawcett, 1993). Change is probabilistic and a result of multiple antecedents, and phenomenon can be observed subjectively or objectively (Fawcett, 1993).

The philosophy of constructionism draws from epistemological positions, in which truths are discovered and experienced from a social context (Reed, 2011). Constructionism aligns research and methods with interpretive inquiry rather than empirical inquiry, of which research methodology focuses more on subjective experiences rather than objective measurements. Basic tenets of constructionism include the following: 1) research is a nonlinear process; 2) understanding is an outcome of social interactions among people, their environment, and culture; 3) reality is grounded on non-observational factors that affect the context of discovery; 4) there are a multitude of research methods for studying social processes; 5) research is influenced by historical and cultural perspectives; 6) researchers depend on shared ideas and values rather than align with foundational views; and 7) knowledge that is generated and applied needs to have pragmatic implications, as described by Reed (2011).

Facilitation is the interaction between individuals, groups, and social influences that affects the integration of evidence into a clinical setting. Facilitation itself is a multidimensional social process and reciprocal person-to-environmental interactions may change the process of facilitation. Persons engaged in facilitation may have differing views or perspectives based on historical (past) and cultural experiences that may affect the success or hinder facilitation of EBP. From the investigator's perspective, knowledge creation are socially constructed interactions between individuals, groups, and facilitators. In associating the investigator's philosophies of nursing and the phenomenon of facilitation, the construct of facilitation is a social and dynamic process that occurs between individuals or a group of people.

There are several terms used throughout the dissertation study, and Table 1 provides a list of terms and definitions as they pertained to the study. In the following sections and chapters, further discussion of terms and definitions occurs as they played an integral role in this dissertation study.

TABLE 1. *Definition of terms.*

| | |
|--------------------------------------|---|
| Context | The environment in which the innovation is being implemented. This can be at the local, organization, or community level (Harvey & Kitson, 2016). |
| Dissemination Science | The study of methods of targeted and purposive diffusion of evidence or interventional strategies to a group in a clinical setting. Dissemination science examines how evidence or interventions are created, packaged, transmitted, and interpreted (NIH, 2017). |
| Evidence-Based Practice (EBP) | A problem-solving method that integrates clinical expertise, best available research, and patient preferences and values in clinical decision making (Melnyk et al., 2012). |
| Facilitation | Defined by the researcher as a strategy that enables or makes things easier for people in a collaborative learning environment. |

TABLE 1. – *Continued*

| | |
|---|---|
| Facilitation Purpose | Purpose falls on a continuum from task-oriented to holistic (Harvey & Kitson, 2016). |
| Facilitator Role | An appointed role. The person(s) use a set of strategies and activities to enable implementation of an innovation (Harvey & Kitson, 2016). |
| Facilitator Skills and Attributes | The ability to perform required tasks and the possession of characteristics that enable implementation of role expectations and activities (Stetler et al., 2011). |
| Implementation Science | The study of methods to promote the adoption and integration of evidence-based practices, interventions, and policies into routine healthcare and public health settings (NIH, 2017). |
| Innovation | A general term to describe evidence from research, clinical, patient, and local experiences (Harvey & Kitson, 2016). |
| Integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) | A conceptual framework developed by nurse researchers in 1998 with revisions to the framework published in 2016. The framework posits four constructs that promote successful implementation of evidence into a clinical setting: innovation, recipient, context, and facilitation (Harvey & Kitson, 2016). |
| Quality Improvement | Combined efforts of relevant stakeholders (e.g., clinicians, patients, researchers, payers, and educators) to make the changes that will lead to better outcomes, system performance, and professional development (Batalden & Davidoff, 2007). |
| Recipient | People who can influence the innovation or people who may be affected by the innovation (Harvey & Kitson, 2016). |

Conceptual Framework

The integrated Promoting Action on Research Implementation in Health Services (i-PARIHS) conceptual framework provided the investigator with the overarching outline and underpinned this dissertation study to explore and describe the construct of facilitation. The original i-PARIHS conceptual framework was inductively developed in 1998 by Kitson, Harvey, and McCormack, following years of anecdotal and pragmatic challenges faced by researchers and practitioners in successfully translating evidence and implementing best practices in clinical settings. Traditionally, knowledge translation has followed a linear process: research → clinical trials → implementation in practice → patient (Kitson, Harvey, & McCormack, 1998). Since the initial publication of the i-PARIHS framework in 1998, there has been much work on refining

the framework. The first phase consisted of framework development and concept analysis on facilitation. The second phase involved evaluation of the framework through empirical case studies; at the time of publication during the second phase, the authors were working on the development of a diagnostic/evaluation tool (Kitson et al., 2008). The diagnostic tool is further described in a later section. A revised version of the original framework was published in 2016 by Harvey and Kitson.

The i-PARIHS framework is a heuristic and practical approach to planning, evaluating, and analyzing its four constructs to improve the success of EBP implementation and practice interventions (Harvey & Kitson, 2015). The i-PARIHS framework consists of four constructs and the propositional statement of the framework is: successful implementation is the achievement of implementation goals and results from *facilitation* of an *innovation* with the *recipients* in their *context* (Harvey & Kitson, 2016); however, there are no propositional relationships that link the four constructs of the i-PARIHS framework. The i-PARIHS framework highlights the nonlinear, iterative, complex, and multi-faceted approach necessary to implement evidence in real-world settings.

The four constructs – innovation, recipients, context, and facilitation – are further divided into sub-elements that need to be considered for successful implementation (Harvey & Kitson, 2016). The i-PARIHS framework focuses on the active process of implementing or integrating evidence into a clinical setting (Tabak, Khoong, Chambers, & Brownson, 2012) and thus influences and explains how evidence is implemented into clinical practice using facilitation as an implementation strategy (Kitson & Harvey, 2015). Descriptions of the four constructs of the framework are now provided.

Facilitation

For purposes of this dissertation study, the investigator defines facilitation as an implementation strategy to enable others by making things easier within a collaborative, learning environment.

Innovation

Innovation is a broad, general term to describe evidence from research, clinical practice, and patient and local experiences. Characteristics of innovation include its trialability, observable results, clarity, and degree of fit, to name a few; also, characteristics of innovation influence the adoption, uptake, and implementation of innovation (Harvey & Kitson, 2016).

Recipient

Individual(s) are essential stakeholders in implementing an innovation, and a recipient can mean those who can influence the innovation or people who may be affected by the innovation (Harvey & Kitson, 2016). Recipient characteristics that may influence or hinder change include beliefs, motivation, goals, resources, teamwork environment, and existing networks to name a few (Harvey & Kitson, 2016). There is broad applicability of stakeholders who may fall under the recipient construct and may comprise of patients, families, clients, clinical staff, and managers (Harvey & Kitson, 2016).

Context

Context is the environment in which the innovation is being implemented and this can be at the local, organization, external health systems, or community level (Harvey & Kitson, 2016). A consistent theme seen in the literature is the importance of understanding current strengths and needs at the context level before adopting and implementing an EBP (Fixsen, Naoom, Blasé,

Friedman, & Wallace, 2005; Harvey & Kitson, 2016). Some factors that influence context include absorptive capacity, structure and system, culture, leadership support, experience with change practices, and evaluation and feedback processes (Harvey & Kitson, 2016). Figure 2 further identifies contextual factors identified in the i-PARIHS framework.

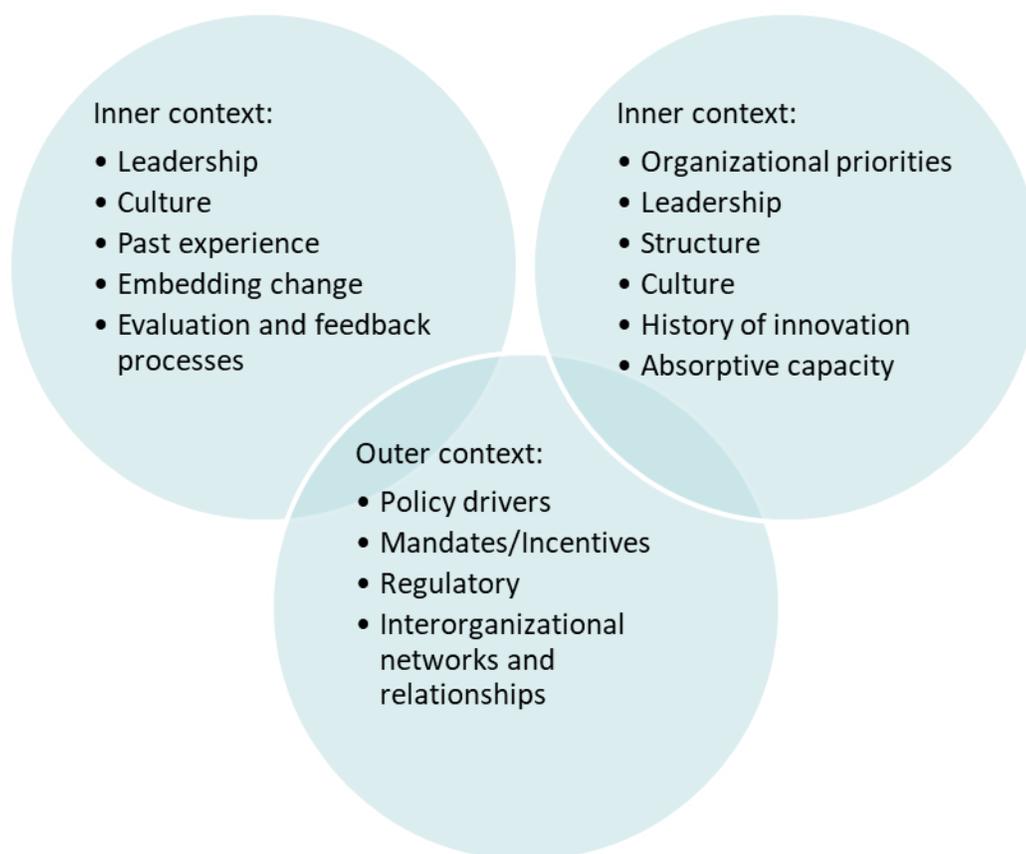


FIGURE 2. i-PARIHS construct of context and influencing factors. (Harvey & Kitson, 2016)

The i-PARIHS framework also offers a diagnostic and evaluative grid that assists in identifying the type of facilitation support necessary for successful implementation. Figure 3 illustrates three different examples of the degree of facilitation support and shows increasing success for implementation when the evidence is perceived as the best scientific evidence

available to both clinicians and patients, the context is receptive, and strategies are in place to facilitate implementation (Kitson et al., 2008):

1. F1: facilitation support for adjusting weak context and strong evidence into a highly receptive context.
2. F2: facilitation support to manage weak context and weak evidence situation. This is a difficult situation and may include safety issues.
3. F3: facilitation support to manage strong context and weak evidence situation. This situation usually involves routine practices and power.

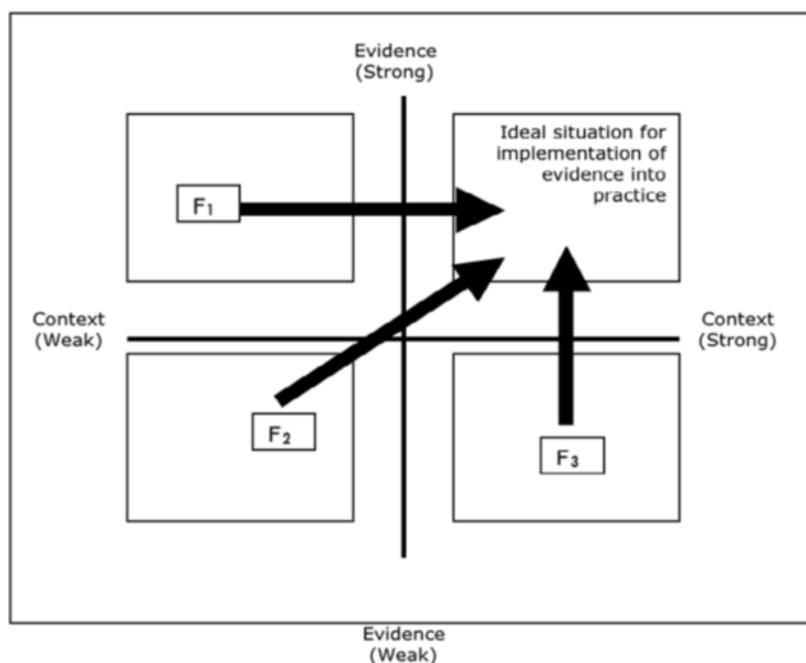


FIGURE 3. Diagnostic and evaluative grid. (Kitson et al., 2008)

Implementation Strategy of Facilitation

Facilitation is the primary construct of interest for this qualitative descriptive study. Facilitation is an implementation strategy (Dogherty et al., 2010; Ritchie et al., 2015; Ritchie et al., 2017), the active construct in the i-PARIHS framework and is initiated via the role of

facilitators. Facilitators are appointed or specified individuals who aim to help others; to increase successful implementation, facilitators continuously assess and respond to characteristics of the innovation and recipient(s) in their local context (Harvey & Kitson, 2016). It is essential that facilitators understand *what* is being implemented, the individuals and teams *who* will enact the change and the environment in which the change will occur; facilitation is the *how* construct of implementation (Harvey & Kitson, 2016). There are three sub-elements of facilitation, which include the purpose of facilitation, the facilitator's role, and the facilitator's skills and attributes (Kitson et al., 2008; Harvey & Kitson, 2016). The process of facilitation requires the facilitator to employ various activities, strategies, and skills and attributes to enable successful implementation of evidence or an innovation.

While facilitation is an implementation strategy and a purposeful *process*, facilitators play an essential *role and demonstrate skills and attributes* that assist in getting evidence adopted and implemented into a clinical setting. Furthermore, facilitators tailor their implementation activities and strategies appropriate to the evidence and the contextual setting the evidence will be implemented in (Harvey & Kitson, 2016).

Facilitation Purpose

Concepts are the building blocks for theory development, and thus one of the first steps is to determine and clarify conceptual meanings and definitions (Walker & Avant, 2011). A concept analysis demonstrated four attributes of facilitation: 1) mutual and genuine respect; 2) creation of a learning partnership; 3) a dynamic goal-oriented process; and 4) critical reflection (Burrows, 1997). The four attributes of facilitation can be identified within the i-PARIHS framework.

In the i-PARIHS framework, the purpose of facilitation is dependent on the amount of support needed and falls on a continuum. The continuum of facilitation's purpose can vary from providing help and support to achieve a specific goal, to a more holistic purpose of facilitation to enable individuals and help teams to analyze, reflect, and change their own behaviors, attitudes, and ways of working (Harvey et al., 2002; Helfrich et al., 2010; Harvey & Kitson, 2016).

Additionally, the primary purpose and goal of facilitation may affect its operationalization and facilitated interventions (Dogherty et al., 2010) and is not a static process. Figure 4 illustrates the purpose of facilitation continuum.

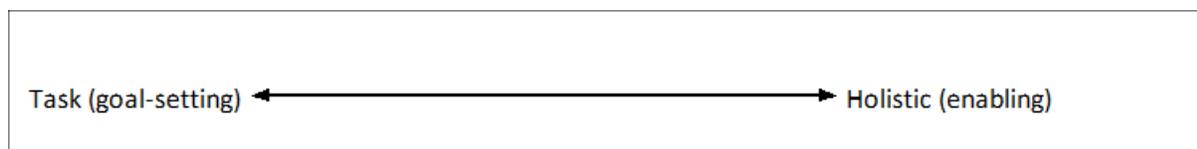


FIGURE 4. Purpose of facilitation continuum. (Harvey et al., 2002)

Facilitator Role

The facilitator is an appointed role, and the person(s) uses a set of strategies and activities to enable implementation of evidence (Harvey et al., 2002; Harvey & Kitson, 2016). To fulfill the role successfully, facilitators must be able to function in a flexible and receptive way to tailor their approach to the evidence, setting, and people involved (Harvey & Kitson, 2016).

Facilitators can either be internal, external, or a combination of both to the clinical setting. The role of the facilitator is dependent on the purpose of facilitation and falls on the continuum of “doing for others” as compared to “enabling others,” as shown in Figure 5.

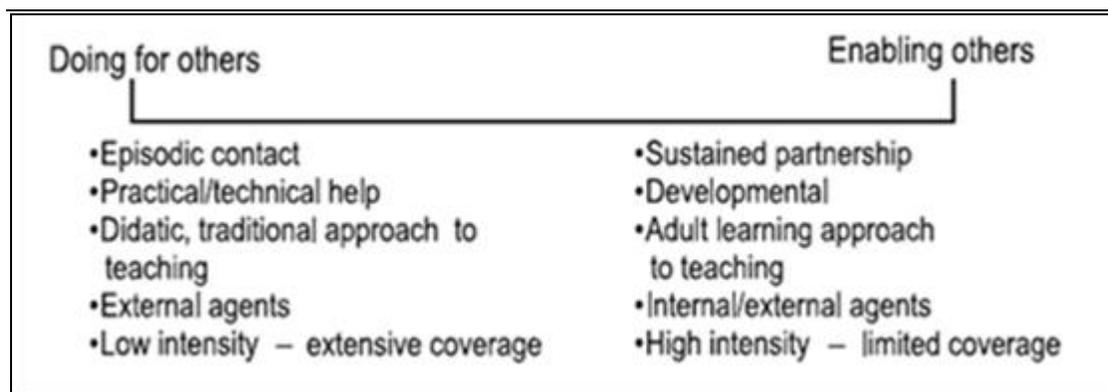


FIGURE 5. Facilitator role continuum. (Harvey et al., 2002)

The facilitator role is distinctly different from an opinion leader or change agent. Opinion leaders are viewed as an expert, and because of this, their opinions are given more credibility (David Johnson, 2012). It is important to understand that opinion leaders' influence is given to them by members of a social organization, and their authority may change if the opinion leaders are perceived as deviating from group standards; opinion leaders do not often serve well in roles that champion advocacy (David Johnson, 2012). Change agents have direct links to institutional interests, and they want to effect changes in groups of which they are typically not members (David Johnson, 2012). Additionally, change agents try to motivate innovation decisions in the direction desired by an outside organization (David Johnson, 2012).

Facilitator Skills and Attributes

Facilitators should demonstrate interpersonal and communication skills, as well as a range of other skills and attributes that align with the purpose of facilitation. If the purpose is task-oriented, a facilitator's skills and attributes may include setting meetings and creating goals. On the other hand, if the purpose is a long-term goal or unit or organizational change, facilitator skills and attributes may consist of the ability to be present and provide tools to support critical

reflection (Harvey et al., 2002; Figure 6). It is important to recognize that facilitators perform ongoing assessment of implementation and incorporates a degree of flexibility to navigate and adjust needed skills and attributes in response to individual or team conditions (Harvey et al., 2002; Harvey & Kitson, 2016).

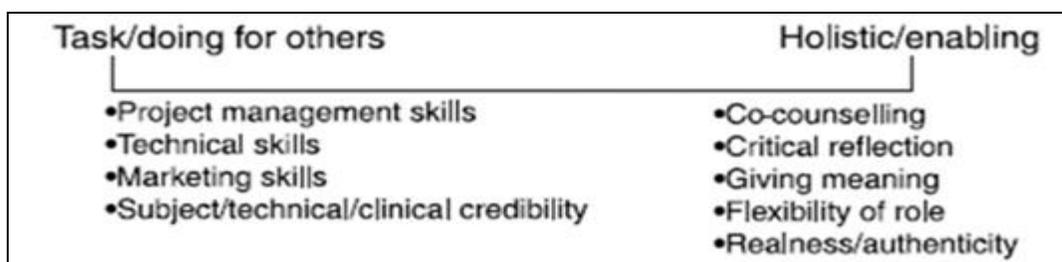


FIGURE 6. Facilitator skills and attributes. (Harvey et al., 2002)

Following acquisition of knowledge and understanding of the i-PARIHS framework, Figure 7 is the investigator's overarching interpretation of the framework and hypothetical relationships between the constructs used for this dissertation study.

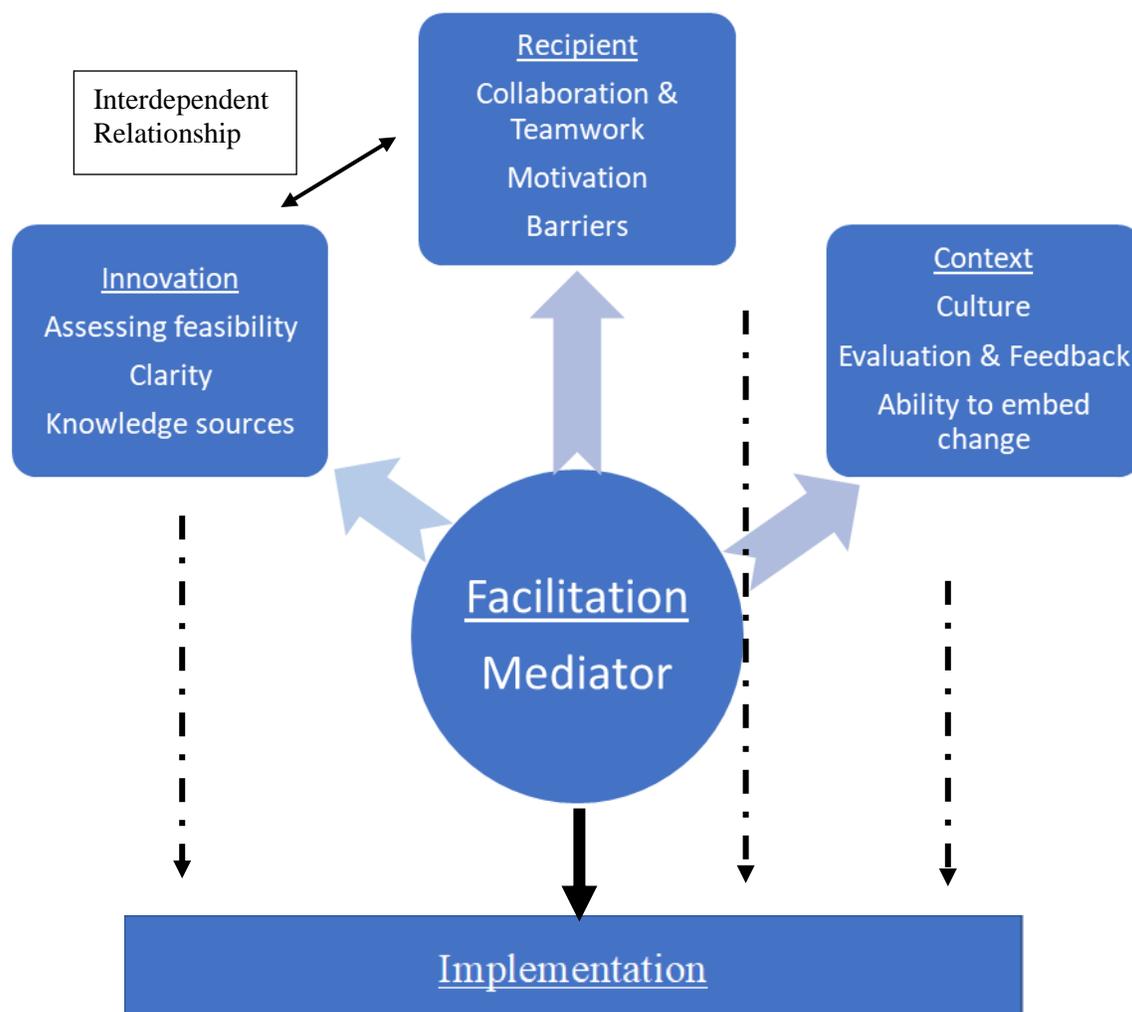


FIGURE 7. Interpretation of i-PARIHS framework and relationship between constructs.

- The relationship between innovation and recipient(s) is interdependent and influenced by beliefs, values, and clinical experience.
- Context may have an indirect effect on implementation as portrayed by the dotted arrow based on inner and outer context influences such as leadership, culture, absorptive capacity, regulatory mandates, and policy drivers. Innovation and recipients may also have an indirect effect on implementation as portrayed by the dotted arrow.

- The process of facilitation, via the facilitator role, has a mediating effect on innovation, recipients, and context and a direct effect on implementation as portrayed by the solid arrow.

Dissertation Study Focus

The California Perinatal Quality Care Collaborative (CPQCC) is a non-profit organization whose mission is to improve care delivery and outcomes for vulnerable infants cared for in Neonatal Intensive Care Units (NICUs) throughout the state of California. CPQCC receives support from the David and Lucile Packard Foundation and the State of California, Department of Public Health, Maternal, Child and Adolescent Health Program (CPQCC, n.d.). Improved delivery of care and outcomes is achieved through collaborative quality improvement (QI) work and data-driven performance improvement and benchmarking (CPQCC, n.d.). There are 138-member NICUs that represent over 90% of infants cared for in California. A subcommittee of CPQCC is the Perinatal Quality Improvement Panel (PQIP), comprised of CPQCC employees and physician and nursing volunteers. The PQIP subcommittee analyzes CPQCC data, outlines indicators and benchmarks, recommends QI objectives, and assists clinicians in understanding and using CPQCC data to improve patient care (CPQCC, n.d.). PQIP uses the Model for Improvement (MFI) for statewide collaboratives. The MFI is a framework to guide QI work through rapid and small tests of change termed plan-do-study-act (PDSA) cycles to continuously assess and improve upon clinical systems and processes (as cited by Hughes, 2008; U.S. Department of Human and Health Services [HHS], 2011). The MFI poses three questions: 1) What is the goal of the project? 2) How will we know that an improvement has occurred? and 3) What change(s) can we make that will result in improvement? (as cited by

Hughes, 2008; HHS, 2011). Figure 8 represents the MFI. The innovation of interest for this dissertation study was CPQCC's Antibiotic Stewardship Collaborative, using tenets of MFI, to inform QI initiatives. Details about the Antibiotic Stewardship Collaborative are described in the next section.

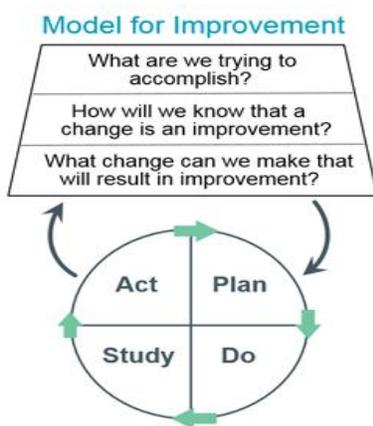


FIGURE 8. Model for improvement as cited by IHI

Antibiotic Stewardship Collaborative

There is a thoughtful and deliberate process that occurs in selecting the collaborative topic for CPQCC QI collaboratives. The members of PQIP identify relevant topics and then discuss pros and cons for each topic. The PQIP panel then takes a vote, and the topic with the highest number of votes is the tentative collaborative topic; the executive board for CPQCC gives final approval. Upon final approval, an expert panel convenes to develop the collaborative framework and charter (aims and goals of the collaborative), change package (potentially best-practice bundle), and measurement strategy.

The topic selected for the most recent CPQCC Collaborative was antibiotic stewardship; this was a result of the Schulman et al. (2015) article describing the variation in antibiotic use in California regional, community, and intermediate NICUs. The three levels of NICU care

(regional, community, and intermediate) are authorized by California Children's Services (CCS) and generally correspond to the American Academy of Pediatrics (AAP) levels IV, III, and II, respectively (CCS, 2018; AAP, 2012). The study found that there was a 40-fold variation from 2.4% to 97.1% of patient days with a median of 24.5% (Schulman et al., 2015). Antibiotic use was independent of proven infection, necrotizing enterocolitis, surgical volume or mortality; furthermore, 50% of intermediate NICUs were in the highest antibiotic quartile of antibiotic use, yet most of these intermediate NICUs reported having a zero-infection rate (Schulman et al., 2015). Compared to regional NICUs in the lowest antibiotic quartile, the regional NICUs in the highest antibiotic quartile reported a 218% higher inborn admission rate (0.24 vs. 0.11, $P = .03$), and 35% longer length of stay (90.2 days vs. 66.9 days, $P = .03$; Schulman et al., 2015). This study highlighted the disparity in care delivery, practice variation, and was a significant contributing factor in determining the collaborative topic.

Following the selection of the collaborative topic, the collaborative is announced at the annual Cool Topics in Neonatology conference held in San Diego each March and an email invite is sent out to CPQCC member NICUs. NICU teams that express interest and pay an enrollment fee of \$7000 are registered for the CPQCC Collaborative. Participating NICUs in a collaborative have: 1) access to the expert panel and a collaborative listserv; 2) monthly webinars and team report-outs with participating NICUs and the expert panel; 3) three to four face-to-face learning sessions throughout the collaborative timeframe; and 4) access to an Extranet database to input unit data. The Antibiotic Stewardship Collaborative expert panel consisted of an infectious disease expert, two neonatologists, neonatal clinical nurse specialist (CNS), pharmacist, pediatrician, health informatics specialist, infection control prevention RN, PQIP

research committee member, QI expert, one parent, systems scientist, and CPQCC support person. Expert panel members who are not CPQCC employees receive a \$5000 stipend for their time and expertise throughout the year-long collaborative. Twenty-eight NICUs participated in the CPQCC Antibiotic Stewardship Collaborative; the collaborative began in June 2016 and spanned over 18 months with a completion date of December 2017 (12 months of active collaborative with a six-month sustainability phase). There is a general CPQCC collaborative aim statement, and each participating NICU is tasked with creating a unit specific aim statement to reduce their antibiotic use rates (AUR). AUR is the “total number of patient-days that infants were exposed to one or more antibacterial or antifungal agents administered intravenously or intramuscularly per 100 patient-days” (Schulman et al., 2015, p. 827). To achieve a reduction in AURs, each participating NICU established a local change package based on a potentially best-practice bundle developed by the Antibiotic Stewardship Collaborative expert panel. The potentially best-practice bundle consisted of four items: 1) ensure timely and appropriate initiation of antibiotics; 2) provide proper cessation or de-escalation of antibiotics; 3) establish real-time monitoring and measurement systems; and 4) promote a culture of optimal antibiotic use within the facility. CPQCC is not in the role to mandate specific practices and recognizes that each NICU presents with its’ own unique potential and issues with QI work; therefore, the potentially best-practice bundle may be operationalized differently for each NICU. For example, one NICU may create an electronic health record time-out and a different NICU may achieve the same time-out result through daily antibiotic rounds. The goal of the potentially best-practice bundle is to reduce clinician variation through standardizing unit practices and using the best evidence available to implement process and practice changes to reduce AURs.

Historically, the number of California NICUs that participate in a collaborative range between 20 to 30, which is less than 25% of all California NICUs. For the Antibiotic Stewardship Collaborative, 28 (out of 138) NICUs participated. PQIP has been actively trying to identify other QI models to increase statewide NICU involvement in QI work over the course of the last several years. With the Antibiotic Stewardship Collaborative, an external facilitator NICU QI model was implemented and CPQCC member NICUs were invited to participate. The external facilitator QI model is different than the benefits NICUs receive with full collaborative participation as mentioned above. With the external facilitator NICU QI model, there is no associated costs, participating NICUs are given the potentially best-practice bundle, access to the Extranet database, and take part in monthly phone conferences facilitated by an external facilitator. From the remaining 110 NICUs throughout California that did not enroll in the full Antibiotic Stewardship Collaborative, 13 NICUs expressed interest in participating in the external facilitator NICU QI model. Out of these 13 NICUs that expressed interest, seven NICUs put data into the Extranet database, and only three NICUs remained engaged in the external facilitator NICU QI model throughout the Antibiotic Stewardship Collaborative. Thus, the dissertation study focus for the investigator was exploring the construct of facilitation used by external facilitators in the NICU QI model of CPQCC's Antibiotic Stewardship Collaborative. The external facilitator NICU QI model will be further discussed in Chapter 3.

Purpose Statement and Specific Aims

The purpose of this qualitative descriptive study was to categorize, describe, and discover essential features of the strategy of facilitation in the context of implementing an EBP using

perspectives elicited from neonatal healthcare clinicians and external facilitators. The specific aims and associated research questions for this dissertation study were:

Aim1: Describe the implementation strategy of facilitation when implementing an EBP from the perspective of external facilitators and neonatal healthcare clinicians.

RQ 1.1 What are the elements and characteristics of facilitation?

RQ 1.2 What are the barriers in the process of facilitation?

RQ 1.3 What are the successful drivers or enablers with the process of facilitation?

Aim 2: Describe the external facilitator role as perceived by external facilitators and neonatal healthcare clinicians.

RQ 2.1 From the perspective of external facilitators and neonatal healthcare clinicians what factors influence the effectiveness of the external facilitator role?

RQ 2.2 From the perspective of external facilitators and neonatal healthcare clinicians, what are the benefits and challenges of facilitators who employ the “doing for others” approach and administered practical support compared to those who used an “enabling others” approach?

Summary

The challenge to integrate EBP into clinical settings is even more imperative in today’s fast-paced and complex healthcare system, especially since the IOM (2009) has set an aggressive goal that 90% of clinical care and decisions be based on evidence by the year 2020. For researchers and clinicians, the i- PARIHS conceptual framework offers a heuristic and pragmatic framework to plan, guide, and evaluate the implementation of evidence or practice interventions into clinical settings and increase the success of implementation by the implementation strategy

of facilitation and facilitators The purpose of this dissertation study was to categorize, describe, and discover essential features of the strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators.

CHAPTER II: LITERATURE REVIEW

Methods and Results

The purpose statement guiding the literature search was: *What is the experience of neonatal healthcare clinicians and external facilitators with the implementation strategy of facilitation in implementing evidence-based practice in a NICU?* However, as there was no identified literature specific to a NICU setting, this search term was not included and therefore literature on facilitation was reviewed in the context of general healthcare settings. Bibliographic databases searched include the Cumulative Index to Nursing and Allied Health Literature (CINAHL), OVID, Web of Science, and PubMed.

The literature search spanned from 2002-2017 to capture seminal work published on facilitation and facilitator roles by prominent nurse scientists in the field of implementation science. Search terms included facilitation, nursing, evidence-based practice, evidence-based, implementation, core implementation, implementation science, facilitator, external facilitator, research utilization, knowledge translation. The search yielded 289 articles retrieved and exported to EndNote.

To determine the articles for data extraction, the investigator first removed duplicate articles (n = 47), and then removed articles based on title (n = 132). Title exclusion included articles that were not nursing or healthcare related (e.g., education discipline), title indicated practice or educational development, one of the search terms was not included in the title, or the article was commentary or conference proceedings. The investigator excluded articles (n = 52) if they were conference or discussion abstracts, the abstract did not contain a combination of search terms, or the article was not applicable to research question. Also excluded were articles that did

not pertain to a hospital or outpatient clinical setting, book chapters, dissertation projects, and research that did not focus on EBP or program implementation, facilitation, or internal/external facilitator roles. The remaining full-text articles were reviewed (n = 58), however for purposes of this dissertation study, articles manually selected for discussion demonstrated published literature on facilitation in the last five years (n = 27).

Discussion

In the field of implementation science, facilitation as an implementation strategy has garnered much interest from researchers. Analysis of selected articles between 2012 and 2017 demonstrated various study designs and methods, different clinical settings from the U.S. and other countries, a variety of facilitated strategies and interventions, and complexities of the facilitator role. Article analyses were synthesized into the most appropriate sub-element of the construct of facilitation from the i-PARIHS framework: facilitation purpose, facilitator roles, and facilitator skills and attributes. Unless one of the sub-elements (purpose, role, skills and attributes) was explicitly specified in the article, the investigator interpreted study outcomes and then categorized the article to one of the three sub-elements. Studies with no apparent linkage to one of the sub-elements will be discussed under “other.”

Purpose of Facilitation

Only one qualitative study focused on the purpose of facilitation (Brown & McCormack, 2016). The authors explored holistic facilitation and the concept of psychological safety and the impact on unit culture. Holistic facilitation incorporates facilitators working with individuals to release their potential and build a structure of empowerment to help achieve implementation goals (Harvey & Kitson, 2015). Three key themes emerged from this emancipatory action

research design as experienced in the practice context: psychological safety, leadership, and oppressed behaviors.

Roles and Activities of Facilitators

Twenty articles described various roles and activities of facilitators. The literature review demonstrated that the various roles and activities employed by facilitators enhance uptake of evidence. Dogherty et al. (2010) conducted a focused review on the meaning of facilitation and constructed a taxonomy of 53 facilitation strategies and activities and facilitator role synopsis arranged in four broad categories: 1) planning for change; 2) leading and managing change; 3) monitoring progress and ongoing implementation; and 4) evaluating change. In a subsequent descriptive exploratory design of an existing systematic review of 28 articles, Dogherty, Harrison, Graham, and Keeping-Burke (2014) found evidence that 37 of the 53 facilitation activities described in the taxonomy of facilitation and facilitator role synopsis, increased implementation of evidence into clinical settings. However, many activities were not conceptualized or referred to as “facilitation” and “facilitators” of the identified studies in the systematic review were study researchers and the authors suggest more research is needed in natural settings with local clinicians (Dogherty et al., 2014). Additionally, findings from this study of the existing systematic review demonstrated difficulties in the effectiveness of facilitation due to the small number of studies, the varying degree of detail of the level of facilitation activities, and how these facilitation activities were delivered (Dogherty et al., 2014). In a qualitative descriptive study to better understand internal facilitation, Elnitsky, Powell-Cope, Besterman-Dahan, Rugs, and Ullrich (2015) identified 54 facilitation activities that included five new holistic facilitation activities that emerged from data analysis: 1) learning the role of the

facilitator; 2) assessing the culture; 3) facilitating external programs; 4) negotiating; and 5) getting buy-in.

As previously described, Dogherty and colleagues (2010) constructed a taxonomy of facilitation interventions and strategies and facilitator role synopsis organized in specific stages related to the implementation of evidence: planning for change, leading and managing change, monitoring progress and ongoing implementation, and evaluating change. Facilitators performed a variety of activities to support interventions and strategies of facilitation as well as demonstrated different levels of involvement and expertise from novice to expert facilitators. Studies analyzed for this literature review demonstrated facilitator activities and roles overwhelmingly aligned with “doing for others” compared to “enabling others.” Activities performed by facilitators include education and training, marketing, stakeholder engagement, ongoing assessments, and problem identification and resolution (Waxmonsky et al., 2014; Wyer et al., 2016; Houle, Charrois, Faruquee, Tsuyuki, & Rosenthal, 2017; Ritchie, Parker, Edlund, & Kirchner, 2017). A systematic review of 23 articles focusing on practice facilitation demonstrated that all studies included audit with feedback, consensus building, and goal-setting as key factors (Baskerville et al., 2012). The systematic review also showed that primary care practices were 2.76 times more likely (95% CI, 2.18-3.43) to participate in EBP when some form of facilitation was included as part of the implementation process (Baskerville et al., 2012). Setting goals, building consensus and relationships, creating collaborative learning environments, and adapting to meet unique contextual needs were also identified as important facilitator activities (Dogherty et al., 2012; Parchman et al., 2013; Waxmonsky et al., 2014; Bidassie, Williams, Woodward-Hagg, Matthias, & Damush, 2015; Liddy et al., 2015; Lindsay et

al., 2015; Lessard et al., 2016; Houle et al., 2017; Ritchie et al., 2017; Ward, Baloh, Zhu, & Stewart, 2017).

A qualitative metaphor on relationship building, “building of a bridge” was developed by der Zijpp et al. (2016) in a qualitative analysis of interactions between internal facilitators and managerial leaders to describe an often-neglected aspect of supporting a continuous reciprocal relationship between internal facilitators and managerial leaders to influence the progress of implementation. In a prospective case study evaluating the constructs of the i-PARIHS framework, the presence of an active internal facilitator supported implementation and facilitators participated in activities to engage, energize, and promote program awareness and buy-in (Hill et al., 2017).

In a qualitative study by Lessard et al. (2016), the authors described exclusive roles performed by internal facilitators (three roles) compared to external facilitators (nine roles). In their study, roles specific to internal facilitators consisted of storytelling, discussing specific cases within the scope of the project, and linking implementation actions to outcomes. Roles specific to external facilitators included skills training, stimulating critical inquiry and refining project goals, forecasting, performing meeting evaluations, adapting facilitation actions to the local context, administrative planning, active listening, observing group members’ behaviors, and sharing benchmarking data. This study further suggested that facilitation and facilitators roles are diverse, complex, versatile, and dependent on the purpose of facilitation.

In contrast, a few studies were unable to demonstrate successful uptake and implementation of evidence. Armstrong, Taljaard, Hogg, Mark, and Liddy (2016) discussed one explanation for the non-significant effects in their study of practice facilitation on diminished

face-to-face facilitator visits, as only half of the planned visits occurred during the study period. In a pilot study that assessed the successful implementation of a delirium assessment tool, facilitated activities and facilitator role were not met as it was difficult to implement consistent use of Confusion Assessment Method from nursing as it was time consuming (Powrie, Danly, Corbett, Purath, & Dupler, 2014). Despite this, results showed statistical significance with length of stay ($p = < 0.003$) and mortality ($p = < 0.03$), however, no significance in incidence of delirium (Powrie et al., 2014). In a qualitative study, facilitators implemented a nationwide program on evidence-based elderly care in Sweden, and while conclusions described the complex and comprehensive nature of implementing a large-scale program, commitment from the facilitators was vague because of unclear leadership and responsibility of the nationwide initiative and better organizational communication was necessary to support the effort (Nygårdh, Ahlström, & Wann-Hansson, 2016). In a descriptive case study, Hill et al. (2017) explored provider perception of the i-PARIHS constructs in a retrospective study that addressed preventive measures to reduce the transmission and infection of Methicillin-resistant *Staphylococcus aureus* (MRSA), and a prospective study to promote use of My HealtheVet (MHV) conducted in the Spinal Cord Injury and Disorder (SCI/D) System of Care of the United States Department of Veterans Affairs. Study findings demonstrated positive responses to facilitators, but the facilitator role was not fully achieved secondary to competing roles (e.g., dual roles as program facilitators and direct patient care), creating barriers to successful implementation. Results show that the singular strategy of facilitation and facilitators may not overcome other barriers when implementing evidence or a new program into a clinical setting.

Skills and Attributes of Facilitators

Eriksson et al. (2016) examined neonatal mortality through process evaluation in a Vietnam province following a facilitated intervention of using community laywomen as facilitators. Province communes who were supported by a group with a facilitator that rated high on skills and attributes ($n = 27$) had lower odds of neonatal mortality (odds ratio, 0.37; 95 % confidence interval, 0.19–0.73) than control communes ($n = 46$). This study demonstrated that the degree of facilitator skills and attributes played a role in neonatal mortality, despite the facilitator being a layperson. In the third year of the study trial, observed differences were seen in neonatal mortality in high-facilitated versus low-facilitated communes; low-facilitated mortality rates were no different compared to control communes.

In a participatory action research study, interprofessional teams were randomized to a “supported” group which consisted of an external facilitator and financial incentives versus an “unsupported” group with no external facilitator and financial incentives during the early implementation of a primary care program (Bareil et al., 2015). The authors found that external facilitators planned, organized, and structured meetings. Participants felt that external facilitators conducted productive meetings, gathered information, and followed up on previous meetings.

Rycroft-Malone et al. (2013) conducted a qualitative study exploring three interventions to implement an evidence-based pre-operation program in Europe: 1) standard dissemination (SD); 2) SD, web resources, and opinion leader; and 3) SD and facilitator. Opinion leaders and facilitators exercised many activities and roles. However, an interesting finding showed no distinct characteristics between activities and the skills and attributes of an opinion leader

compared to a facilitator, despite the interventions being conceptually different and bundled independently (Rycroft-Malone et al., 2013).

Two articles specifically discussed the use of problem-solving strategies exhibited by facilitators. In a cluster randomized study design, Persson et al. (2013) engaged a group of local healthcare and policy stakeholders and used laywomen as facilitators to reduce neonatal mortality rates in Vietnam following a PDSA problem-solving method. Following a content analysis of a team-based problem-solving approach exploring facilitators who employed brainstorming sessions, good listening skills, and encouragement plus data feedback in quality improvement stroke intervention compared to feedback alone, Bidassie et al. (2015) described that facilitator relationships and responsibilities evolve over time and the dynamic nature of facilitation.

Other

Qualitative analyses in this literature review illustrate the complicated nature of facilitation and why the translation of research into practice remains challenging in healthcare. Doherty et al. (2013) described successes and failures by 20 nurses who facilitated EBP in Canada using critical-incident technique. Factors influencing implementation of EBP were: 1) relevant evidence; 2) focus on a priority issue; 3) facilitator characteristics and approach; 4) development of strategic partnerships; and 5) the use of multiple strategies to effect change. Negative factors affecting the process were: 1) resource deficits; 2) poor engagement or ownership; 3) contextual issues; 4) conflict; and 5) lack of evaluation and sustainability. These factors were related to individual, organizational, contextual, and environmental levels. McKillop et al. (2012) qualitatively analyzed barriers and enablers to EBP implementation. In

their study, there were no appointed facilitators to promote the adoption and implementation of a cardiovascular guideline, and thus the study results reflected the lack of facilitation. Hung and Leidig (2015) used qualitative methods to better understand a piloted evidence-based interventional transitional care program to support high-risk adult patients discharged from the hospital to home from the lens of the PARIHS framework. The authors described that implementation team members used facilitated techniques to promote or limit implementation of the transitional care program. Initially, enrollment was a limiting factor that required use of facilitated techniques primarily implementation team members gaining experience as the program progressed. The authors also described communication and coordination as an emerging facilitated technique and the transitional care program staff was considered integral and the most significant source of program implementation. Table 2 provides a summary of literature review articles.

TABLE 2. Summary of literature review articles.

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|---------------------------|---|---|--|---|---|
| Armstrong et al. (2016) | Stepped wedge cluster randomized control design | 70 primary care clinics in Canada | Secondary analysis of population-based data to examine Improved Delivery of Cardiac Care (IDOCC) program effect on cardiovascular disease (CVD) related hospitalizations. | Practice facilitation, a multifaceted approach used external facilitators to assist family physicians to adopt and implement IDOCC. | There was a steady long-term decrease in CVD-related hospitalizations but no statistically significant effect of IDOCC. Compared to patients in the control condition, patients in the intervention condition were estimated to have 4 % lower odds of CVD-related hospitalizations (adj OR= 0.96, 99 % CI 0.83 -1.11) |
| Bareil et al. (2015) | Participatory action research | Eight primary care clinics in Quebec, Canada | Understand the driving forces during the early stages of implementation of a community-driven & patient-focused program titled "TRANSforming InTerprofessional cardiovascular disease prevention in primary care". | Interprofessional facilitation teams (IFT) were randomized to a "supported" group with an external facilitator (EF) and financial incentives or to an "unsupported" group with no EF or financial incentives. | Three key forces emerged from study analysis: 1) opportunity for dialogue with IFTs, 2) active role of EF, and 3) implementing change budgets. |
| Baskerville et al. (2012) | Systematic review | 23 studies analyzed | Quantitative synthesis the overall effect size (ES) of practice facilitation (PF) and potential moderating factors. | 1,398 participating practices: 697 practice facilitated interventions and 701 control group practices. | An overall ES of 0.56 (95% CI, 0.43-0.68) favored PF (z = 8.76; P <.001). Meta-regression analysis indicated that tailoring (P = .05), intensity of the intervention (P = .03), and the number of intervention practices per facilitator (P = .004) modified evidence-based guideline adoption. |
| Bidassie et al. (2015) | Qualitative content analysis | 11 Veterans Health Administration medical clinics | Explore components of facilitation with the implementation of a stroke quality improvement (QI) intervention. | Facilitation plus data feedback in QI stroke intervention compared to feedback alone. | External facilitators viewed their role as empowering the clinical teams to take ownership of the process changes to improve performance quality. External facilitation involved elements related to communication, relationship building, methods training, monitoring performance over time and promoting team-based problem-solving. |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|--------------------------|---|--|---|--|--|
| Brown & McCormack (2016) | Emancipatory action research | Healthcare staff members from a regional abdominal surgical unit | Explore holistic facilitation from the PARIHS framework as the key element to operationalize changes; critically reflect on practice and enhance patient care. | | 14 sub-themes were identified that impact the culture of the unit: leadership, support, oppressed behaviors, power imbalance, communication, autonomy, interruptions, horizontal violence, threat, distorted perceptions, value, trust, vulnerability, and time. Three key themes emerged in the practice context: psychological safety, leadership and oppressed behaviors. |
| der Zijpp et al. (2016) | Realist process evaluation/qualitative design | 105 managers and 22 internal facilitators (IFs) across 4 European countries | To describe the interaction between managerial leaders and IFs and how this enabled or hindered the process of implementing urinary incontinence guideline recommendations. | | Three themes emerged that promoted or hindered the facilitation process: realizing commitment; negotiating conditions; and encouragement to keep the momentum going. |
| Dogherty et al. (2012) | Mixed methods; case audit and focus group interview | Five selected case series from the Canadian Partnership Against Cancer, known as 'Partnership'. Two cases were ultimately excluded | Expand understanding of activities and skills of external facilitators (EF) actively engaged in facilitation to improve cancer care through guideline implementation occurring within the 'Partnership' cancer case-series study. | Each of the five cases had a local facilitator and two external facilitators if needed to assist in the process of adopting guideline and planning for implementation. | Facilitation of evidence-based practice is a complicated process and necessitates a team approach. Communication and relationship-building are essential components for success. |
| Dogherty et al. (2013) | Critical incident/qualitative design | 20 nurses across Canada attended an interactive symposium on knowledge translation | To describe the implicit comprehension regarding facilitation rooted in the experiences of nurses implementing evidence into practice. | | Factors emerged that described successful and failed experiences of facilitated experiences of implementing evidence into practice. Factors were at the individual, organizational, environmental, and cultural levels that influenced success and failure. |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|---|--------------------------------|--|--|--|--|
| Dogherty et al. (2014) | Descriptive exploratory design | 28 studies in an existing systematic review | Authors examined elements of facilitation in a systematic review of guideline and dissemination in nursing. | | Although process of facilitation and activities are used in interventions to enhance evidence adoption in nursing, these were not conceptualized or referred to as ‘facilitation.’ Facilitation may be a broader intervention that includes organizing and delivering other interventions. |
| Elintsky et al. (2015) | Qualitative descriptive design | 38 facility coordinators from Department of Veteran Affairs medical facilities in the US | To understand internal facilitation activities from the experience of internal facilitators who implemented a safe patient handling program. | | Internal facilitators engaged in a range of activities to support practice changes and exhibited key characteristics and skills such as persistence, clinical credibility, and leadership and project management. Fifty-four facilitation activities were identified and mapped the i-PARIHS framework and taxonomy of facilitation. Five new activities were also identified. |
| Eriksson et al. (2016) <i>NeoKIP Trial</i> | Process evaluation | 44 intervention communes and 47 control communes in a northern Vietnam province | Report on the process of implementation and impact of facilitator intervention. | Intervention of group facilitation to translate knowledge into practice. | 95% of intended monthly meetings with intervention group and facilitator occurred with an overall attendance by intervention group members of 86%. Several factors affected the outcomes of <i>NeoKIP trial</i> : continuity of intervention groups’ progress, effective attributes and skills of facilitators, and targeting problems along a continuum of care. Communes who were supported by a group with a facilitator that rated high on skills and attributes (n = 27) had lower odds of neonatal mortality (odds ratio, 0.37; 95 % confidence interval, 0.19–0.73) than control communes (n = 46). |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|---------------------|---|--|--|--|--|
| Hill et al. (2017) | Descriptive case study | Methicillin-resistant Staphylococcus aureus (MRSA) study and the My HealthVet (MHV) study conducted in the Spinal Cord Injury and Disorder (SCI/D) System of Care of the VA system | Evaluate provider perceptions of i-PARIHS constructs of facilitation, context, and evidence and their sub-elements which were scored on a continuum of low to high. | | Retrospective analysis of the MRSA initiative using the i-PARIHS framework showed the presence of dedicated program facilitators was positive, but competing roles limited their ability to support implementation entirely (mixed). Prospective use of i-PARIHS in the MHV study to evaluate implementation strategies demonstrated a strong internal facilitator supported implementation (high). |
| Houle et al. (2017) | Mixed method/cluster randomized control trial | 10 community pharmacies in Alberta, Canada | Explore needs of community pharmacists to support medical management (MM) services with the support of external facilitation (EF). | External task-focused facilitation compared to usual practice. | External facilitation encouraged staff communication and reflection of current practices however MM services declined over the intervention period from baseline because of increased pharmacists demand and other priorities outside of the MM service. |
| Hung et al. (2015) | Qualitative methods | Interprofessional program staff and steering committee members (n = 7) | To better understand early implementation of an evidence-based (EB) intervention adapted from the Coleman Transition Initiative, authors analyzed early implementation through the lens of the PARIHS framework constructs: context, evidence, and facilitation. | | Because of complex program initiation, contextual factors surrounding the EB intervention should be considered in the early implementation phase as well as identifying barriers to increase success of implementation. The EB intervention was recognized by staff to improve patient outcomes but there was variation on how to support various aspects of the intervention. As a result, there was a variety of facilitation techniques employed to enhance program implementation. |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|-----------------------|---|--|--|---|---|
| Lessard et al. (2016) | Qualitative design | Four family medicine groups in Quebec, Canada | To better understand the facilitation roles employed by both external facilitators (EFs) who supported interprofessional facilitation teams (IFTs) to enhance Transforming Interprofessional Cardiovascular Prevention in Primary Care (TRANSIT) program initiative. | | Facilitation is an intervention to build capacity and support practice change. 72 facilitation roles were identified, arranged into two categories: “implementation-oriented” and “support-oriented.” |
| Liddy et al. (2015) | Stepped wedge cluster randomized control trial design | 70 primary care clinics in eastern Ontario, Canada | Evaluate the impact of the Improved Delivery of Cardiovascular Care (IDOCC) project to the adherence of processes of care delivery. | Practice facilitators (PF) were assigned to support practice changes and adherence to guidelines; PF were intended to visit practices every 3–4 weeks in year 1 (intensive) or 6–12 weeks in year 2 (sustainability). | Practice facilitation did not improve adherence to guidelines and this may be “dose” related. After adjusting for patient and provider characteristics, there was a 1.9 % (95 % confidence interval (CI): –2.9 to –0.9 %) and 4.2 % (95 % CI: –5.7 to –2.6 %) decrease in mean adherence from baseline in intensive and sustainability years, respectively. These results contrast with findings from previously described facilitation trials and highlight the difficulties and challenges of translating research findings into clinical practice. |
| Lindsay et al. (2015) | Prospective, implementation study | Five VA Medical Centers and associated community clinics across six states in South Central US | As part of a national initiative across the VA health care system, the overall goal was to establish delivery of EBP for post-traumatic stress disorder (PTSD) via video telehealth throughout the region. | External facilitation to increase access to psychotherapy via video telehealth. | Over the study period, 27 video telehealth clinics were established. Change scores demonstrated a 3.2-fold increase in unique patients and 6.5-fold increase in psychotherapy video sessions for PTSD. Differences between facilitated versus non-facilitated sites were significant in both unique patients and encounters ($p = 0.041$ and $p = 0.009$, respectively). |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|------------------------|---------------------------------------|--|---|--|---|
| McKillop et al. (2012) | Qualitative descriptive design | Primary health care clinics in high deprivation and need region of New Zealand | Secondary analysis using template analysis to identify enablers and barriers to guideline implementation evaluated by the constructs of the PARIHS framework. | | The lack of facilitation of the guideline into practice was a major barrier to implementation. However, this occurred because there was no one identified as a facilitator for assistance with guideline implementation. The PARIHS framework was found to be comprehensive and provide guidance with guideline implementation in primary health care. |
| Nygårdh et al. (2016) | Qualitative design | Improvement facilitators responsible for knowledge development in elderly care in a county in Sweden | To explore improvement facilitators' experiences with implementing EBP in elderly care. | | Ambiguous commitment from improvement facilitators that resulted from unclear leadership. Primary theme 'moving forward by adjusting to circumstances' and secondary themes 'identifying barriers, keeping focus, maintaining motivation, building bridges, and finding balance' emerged |
| Parchman et al. (2013) | Stepped wedge block randomized design | 40 small primary care facilities in Texas | To assess practice facilitation (PF) in the delivery of diabetes care using the Chronic Care Model (CCM). | Trained practice facilitators worked with individual primary care facilities for one year randomized in groups of 10 to "initial" or "delayed" intervention. | There was significant improvement in Assessment of Chronic Illness Care (ACIC) scores ($p < 0.05$). The increase in ACIC scores was sustained one year after withdrawal of the PF intervention in the initial intervention group and improved in the delayed intervention group during their one year of PF intervention. PF resulted in a significant and sustained improvement in delivery of care consistent with the CCM. |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|-----------------------|---|---|--|--|--|
| Persson et al. (2013) | Cluster-randomized design | 44 intervention communes and 46 control communes in Vietnam | Analyze the effect of facilitation of local maternal/infant stakeholder groups on neonatal mortality in a province in northern Vietnam. | Facilitation of local stakeholders enacting problem-solving techniques would reduce neonatal mortality rate (NMR) and increase attendance with antenatal care. | No significant difference in NMR was observed during the first two years (July 2008 to June 2010) while the third year (July 2010 to June 2011) had significantly lower NMR in intervention arm: adjusted OR 0.51 (95% CI 0.30–0.89). Women in intervention communes more frequently attended antenatal care (adjusted OR 2.27 [95% CI 1.07–4.8]) |
| Powrie et al. (2014) | Pilot study | Hospitalized patients > 65 years following orthopedic surgery at risk for developing delirium | Illustrate how implementation science can be used to improve planning, initiating, and maintaining new EBP to reduce delirium in orthopedic patients using the elements of PARIHS framework. | Facilitated interventions via interprofessional task force members to implement Confusion Assessment Method (CAM). | Facilitated activities from task force members (facilitator role) was not successful in the pilot, it was difficult to implement consistent use of CAM from nursing as it was time consuming. Despite this, results showed statistical significance with length of stay ($p = < 0.003$) and mortality ($p = < 0.03$), with no significance in incidence of delirium. |
| Ritchie et al. (2017) | Qualitative descriptive/matched pair design | 16 VA primary care clinics in 4 VA networks | To assess program quality and adherence to evidence following implementation facilitation (IF) to assist with implementing evidence-based Primary Care-Mental Health Integration (PC-MHI) care models. | | Combination of external expert and internal regional facilitation strategies improves implementation uptake, quality, and adherence to PC-MHI. However, not all sites demonstrated improvement in these areas. Leadership support may provide synergistic effect in increasing the quality of uptake of EBP. |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|------------------------------|----------------------------------|--|---|---|---|
| Rycroft-Malone et al. (2013) | Qualitative design | 19 participating hospitals; purposive sampling of 151 staff and patients pre/post intervention | The main aims of the process evaluation were to determine how interventions were adopted within sites, whether any changes were observed locally, and how implementation processes played out using PARIHS framework. | Facilitated interventions included web-based resource and opinion leader (OL), or PDSA intervention which included a local facilitator to reduce peri-operative fasting time. | Facilitators reported engaging in many implementation activities, some of which resulted in practice changes, but not significant improvements in outcomes. There appeared to be no distinguishing characteristics between activities, skills, and attributes of an OL and those of a PDSA facilitator, despite the two interventions being conceptually different and bundled differently. |
| Ward et al. (2015) | Prospective mixed-methods design | Key personnel from 13 community Iowa hospitals | Evaluate implementation of TeamSTEPPS to identify elements that most closely related to successful implementation using the PARIHS framework. | | Findings suggest support for the PARIHS framework and elements of facilitation and context contributed to successful implementation. The summary scores from the interview content indicated the highest level for facilitation (2.52), followed by context (2.27), and lowest for evidence (1.77). |
| Waxmonsky et al. (2014) | Randomization design | 5 community practices in MI and CO that serve mental health patients | Explored application of an “enhanced” Replicating Effective Programs (REP) intervention compared to “standard” REP intervention to improve fidelity to bipolar disorder treatment (Life Goals Collaborative Care-LGCC). | Standard REP intervention included LGCC manual, training program, and as-needed technical. Enhanced REP intervention included standard REP activities and facilitation to increase provider buy-in. | Enhanced REP implementation was associated with improved LGCC fidelity, assessed by number of group self-management sessions and care management contacts completed. After adjusting for patient factors, participants in enhanced REP intervention was associated with 2.6 (p<.001) times more total sessions and contacts than standard REP which was driven by 2.5 (p<.01) times more care management contacts. Enhanced REP was associated with improved fidelity of LGCC, primarily for care management contacts. External facilitators provided technical assistance and internal facilitators assisted providers with implementation by addressing organizational barriers and meeting with practice leadership. |

TABLE 2. – *Continued*

| Authors/Year | Design | Sample/Setting | Purpose | Intervention | Results |
|---------------------|----------------------|------------------------|--|---|---|
| Wyer et al. (2016) | Three phase protocol | Allen Hospital in NYC. | Evaluate Teaching Evidence Assimilation for Collaborative Health Care (TEACH) multidisciplinary conference training to reduce 30-day readmissions among patients admitted to a community teaching hospital for heart failure (HF) using a three-phase protocol over the course of 3 years. | Three-phase protocol emphasized patient education, medication reconciliation, and transition to community-based care. | Thirty-day HF readmissions decreased from 23.1% to 16.4% (adjusted OR = 0.64, 95% CI = 0.42–0.97) during the year following implementation. Following a start-up cost of \$15,000, program expenses balanced potential savings from decreased HF readmissions. Training a multidisciplinary team in use of a knowledge translation model, combined with ongoing facilitation decreased HF readmissions. |

Strengths and Weaknesses in the Literature

Strengths in the literature show that facilitation as an implementation strategy is a viable approach that may increase the success of EBP implementation in a variety of clinical settings. Researchers have used the i-PARIHS framework to plan, guide, and evaluate program intervention and implementation of best practices. Furthermore, the construct of facilitation and the use of both internal and external facilitators as an implementation strategy are frequently used within large healthcare systems such as the VA, which supports both the practical and scientific function of facilitation.

In contrast, a weakness in the literature demonstrates negligible prospective studies using facilitation as an implementation strategy. In addition, few studies have quantitatively measured facilitation as an implementation strategy, which creates challenges for researchers. This stated weakness with the lack of conceptual clarity and operational definitions to measure facilitation results in gaps in the literature that are discussed in the following section. In the literature review, study variables that were empirically measured tend to examine a reduction in disease or an increase in utilization of EBP, but not the actual strategy of facilitation or use of facilitators and how facilitation affects the adoption and implementation of EBP. The lack of measurements lends itself to ongoing gaps in the literature on how to define and measure facilitation.

Gaps in the Literature

While much research has been conducted on the construct of facilitation, a gap remains in the literature when describing what characteristics and attributes facilitators display in their actual roles with teams to affect the implementation of EBPs (Dogherty et al., 2012). Berta and colleagues (2015) recently identified additional gaps in the literature with facilitation and that

roles of facilitators are inconsistently conceptualized, defined, and operationalized. Subsequently, there is little generalizable knowledge on how to construct the process of facilitation, behaviors of facilitators, and the degree of facilitation needed (Berta et al., 2015). Additionally, the literature review has identified the need to more clearly define the sub-elements of facilitation in the i-PARIHS framework (Helfrich et al., 2010; Rycroft-Malone et al., 2013). Furthermore, except for a government-funded program in Vietnam, there are no studies examining facilitation and the use of external facilitators as an implementation strategy for EBP implementation in a NICU clinical setting.

Because of the weaknesses and gaps in the literature, there is a need to continue to describe facilitation and use of external facilitators to help promulgate or support current literature that may be useful in developing measurement tools specifically addressing facilitation as an implementation strategy. Furthermore, facilitation has not been examined as an implementation strategy in a neonatal intensive care setting. Before a measurement tool can be developed or adapted, it is suitable for researchers to understand similarities or differences that may occur in different populations and settings. For these reasons, a qualitative descriptive study is an appropriate research method.

Summary

The field of implementation science recognizes that there are no “magic bullet” strategies or activities to accelerate the process of adopting and implementing evidence into practice; furthermore, research has focused on the complexities of clinical practice and implementation strategies (McKillop, Crisp, & Walsh, 2012; Harvey & Kitson, 2015). Implementation science is “the study of methods to promote the adoption and integration of evidence-based practices,

interventions and policies into routine healthcare and public health settings” (National Institutes of Health [NIH], 2017, para. 1). Facilitation is one implementation strategy described in the literature as bridging the gap between research and practice (Dogherty et al., 2010). Chapter 2 provided a literature review that showed most studies discuss different facilitator roles that are employed to augment the adoption and uptake of evidence into clinical practice. Facilitation purpose and facilitator skills and attributes are not as robustly studied and recognized. The degree of facilitation and its purpose appears to affect operationalization of the facilitator and is an identified gap requiring more research on the sub-elements of facilitation.

CHAPTER III: METHODS

Chapter 3 provides details on the implementation strategy of facilitation, study method, sampling and recruitment, and methods for data collection, management, and analysis. The chapter concludes with a discussion on strategies to ensure scientific rigor. Specific aims of the dissertation study were: describe the process of facilitation in implementing an EBP (Aim 1) and describe the external facilitator role from the experience of neonatal healthcare clinicians and external facilitators (Aim 2).

Implementation Strategy of Facilitation

Four volunteer external facilitators were recruited from PQIP to assist in facilitating CPQCC's Antibiotics Stewardship Collaborative to the 13 NICU sites. The four external facilitators were neonatologists and had not received any formal training on facilitation strategies or activities. The external facilitators were mentored by a physician who holds a position as a principal investigator for CPQCC. The potentially best practice bundle consisted of four items: 1) ensure timely and appropriate initiation of antibiotics; 2) provide appropriate cessation or de-escalation of antibiotics; 3) establish real-time monitoring and measurement systems; and 4) promote a culture of optimal antibiotic use within the facility.

An initial phone conference attended by four external facilitators and the external facilitator mentor discussed topics such as facilitator role and expectations of time commitment. The 13 NICUs in California were "clustered" into groups based on geography and size and then assigned to one of the four external facilitators. The external facilitators communicated monthly with their groups via phone conference. Out of the 13 external NICU sites, seven NICUs entered data into the Extranet database, and three of the seven NICUs actively engaged in the Antibiotic

Stewardship Collaborative from October 2016 to September 2017 as demonstrated by the monthly phone conferences with the external facilitator. The sustainability period for the Antibiotic Stewardship Collaborative began October 2017 and concluded December 2017.

Study Method

Qualitative research is suitable to answer questions such as why, what, and how of human behavior, beliefs, perceptions, and motives (Neergaard, Olesen, Andersen, & Sondergaard, 2009). The philosophical assumptions of constructionism align with the purpose of this qualitative descriptive study in seeking to understand and describe the implementation strategy of facilitation and the external facilitator role from the socially constructed experience of neonatal healthcare clinicians and external facilitators in a neonatal clinical setting. A qualitative descriptive research design offers a research methodology to analyze and describe participant events in everyday terms (Sandelowski, 2000). Additionally, qualitative descriptive research design is acceptable if a research goal is to obtain a straight description of a phenomenon to develop or refine questionnaires or interventions (Neergaard et al, 2009). The goal of this qualitative descriptive dissertation study was to add to the body of nursing research and field of implementation science by describing the implementation strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators.

Sample

Initially, CPQCC sent out an invite via email to member NICUs inviting individual site participation in the NICU QI Antibiotic Stewardship Collaborative. Out of 132 California CPQCC member NICUs, thirteen NICUs self-selected themselves to participate in the NICU QI

Antibiotic Stewardship Collaborative. From these 13 NICUs, the overall recruitment pool contained a potential sample of 41 participants. These 13 NICUs were grouped geographically and assigned an external facilitator. Three of the external facilitators had three NICUs, and one external facilitator had four NICUs assigned to them. Out of these 13 NICUs, seven NICUs inputted data into the extranet data collection site during the Antibiotic Stewardship Collaborative. From these seven NICUs, only three NICUs consistently collected and put data into the extranet and sustained engagement with the monthly phone conferences with their external facilitator for the yearlong collaborative. The attrition rate of individual NICU sites decreased the overall potential recruitment pool and from the three NICUs, the recruitment pool was approximately 10.

At the start of the Antibiotic Stewardship Collaborative, initial contact by the external facilitators occurred both by email and phone calls to the individual NICU Medical Directors from their assigned NICUs. Most of the time, the external facilitators were redirected to contact an RN – this could have been a nurse manager, clinical nurse specialist (CNS), or neonatal nurse practitioner (NNP). One of the external facilitators was never able to achieve consistent communication with her assigned NICUs, and thus there was complete attrition from those four sites.

Eligible study participants included the four external facilitators and neonatal healthcare clinicians who participated in the external facilitator NICU QI Antibiotic Stewardship Collaborative. Neonatal healthcare clinicians included neonatologists, NICU nurses, neonatal nurse practitioners (NNPs), and neonatal CNSs.

Inclusion Criteria

1) Neonatal healthcare clinicians who participated in implementing an EBP change with the assistance of an external facilitator in the last 12 months in the state of California, or 2) External facilitators who aided in implementing an EBP change in a NICU during the CPQCC Antibiotic Stewardship Collaborative in the previous 12 months in the state of California.

Exclusion Criteria

Non-English-speaking participants or those who are unable or unwilling to complete the phone interview.

Sampling Method

Purposeful sampling is a method used to obtain information-rich cases and involves selecting individuals or groups of individuals knowledgeable or experienced with the phenomenon of interest (Creswell & Poth, 2017). Purposeful sampling for this dissertation study consisted of recruiting neonatal healthcare clinicians who participated in the implementation of an EBP change in a California NICU and external facilitators who augmented adoption and implementation of the EBP change. The sample size for this study was a minimum of 8 and maximum of 20 participants. There is wide variation in the literature recommending estimated sample size based on a systematic review of qualitative research methods of phenomenology, grounded theory, and case study (Gentles, Charles, Ploeg, & McKibbin, 2015). Corbin and Strauss (2015) recommended greater than six interviews for a grounded theory study. Morse (1994) suggested at least six participants to explore the meaning of an experience. The number of participants is dependent on data saturation and is achieved when there are no new emerging themes, problems, findings, or concepts extracted from the data (Francis et al., 2010).

During the data collection phase, the investigator realized the potential pool of participants had drastically decreased because of attrition to approximately 10 from 41 potential study participants. When the degree of attrition was realized, the investigator utilized snowball sampling, a technique used by researchers to help identify other potential study participants. Two participants stated that the other team member no longer worked with them, which further reduced the potential pool of study participants.

Participant Recruitment

The recruitment process is crucial in maintaining ethical research practices and the 1979 Belmont Report stipulated three core principles in research ethics: respect for persons, justice, and beneficence (HHS, 2016). Strict adherence to these principles throughout the research process helps to ensure the integrity of the research. Using an advisory council, recruitment for research participants occurred through members of the council that acted as “gatekeepers.”

Gatekeepers play an important role in gaining or denying access and establishing a relationship between participants and researchers (Creswell & Poth, 2017). The advisory council were PQIP members who had an established relationship with the external facilitators and neonatal healthcare clinicians. Members of the advisory council who functioned as gatekeepers helped to establish and maintain integrity and research ethics throughout the research process.

Gatekeepers’ responsibilities included safeguarding individuals or groups of individuals in an organization such as patients, family members, and employees (McFayden & Rankin, 2016). The investigator sent an email to advisory council members and received approval from each of them that they would serve as an advisory council member (Appendix A).

The advisory council performed an initial introduction to the research study and study recruitment (Appendix B) by email, and the investigator was carbon copied (cc'd) on the email. The recruitment email included a description of participant inclusion criteria and information on how to contact the investigator. Following this initial introduction by email, the investigator sent out weekly recruitment emails for one month to all 41 potential study participants. For responses received, the investigator communicated with the interested participant via email. The investigator provided in detail the purpose of the research study; measures to maintain privacy and confidentiality; participant expectations, risks of participation; and that, at any time, the participant could voluntarily withdraw from the study (Appendix C). The University of Arizona Institutional Review Board (IRB) approved use of a disclosure form (Appendix D), and the investigator emailed the disclosure form to all participants who consented to participate in the study. This disclosure form supplanted a signed informed consent; participating in the interview implied informed consent. This study was conducted using NICU members of CPQCC, and the investigator received a letter of support from CPQCC for the study (Appendix E). A date and time were scheduled for the phone interview and the investigator requested the phone interview be conducted in an office or private room to help ensure privacy and confidentiality.

Data Collection

This qualitative descriptive study received IRB approval from the University of Arizona (Appendix F). Phone interviews were selected as the method for data collection because external facilitators and neonatal healthcare clinicians worked in NICUs geographically scattered throughout the state of California. Individual phone interviews were scheduled at the convenience of the participant that allowed for a relaxed and quiet environment. Rapport was

established before the phone interview by an email exchange between the investigator and participant. Except for one interview, all phone interviews were done in an office setting or home, which helped to ensure privacy and confidentiality. Because of scheduling issues with one participant, the phone interview occurred while the participant was in an airport.

At the start of the phone interview, the investigator verified that the participant met inclusion criteria. One in-depth recorded phone interview using a semi-structured format was used for data collection. Semi-structured interviews consisted of key questions that focus on the phenomenon of interest. However, a semi-structured interview allowed the investigator to expand the query or responses to further explore more in-depth answers (Gill, Stewart, Treasure, & Chadwick, 2008). Interviews were recorded using the cell phone app Call Recorder (2016) and disclosure of using the Call Recorder (2016) to the participant occurred twice. The first occurrence was during email communication between the investigator and potential participant where the investigator provided information on the goals of the study, data collection method disclosing the interview would be recorded, and privacy and confidentiality issues (Appendix D). The second occurrence was upon receipt of the disclosure form by the participant that indicated the interview would be recorded. During and immediately following each recorded interview, the investigator wrote down notes on the interview protocol that was useful in reflexivity activities and data analysis to establish credibility. Creswell (2013) also described the importance of hand-written notes if the audio-recording fails.

The interview questions were broad, open-ended questions to obtain comprehensive descriptions of the participants' experience of facilitation in implementing an EBP. Additional broad, open-ended questions yielded a detailed description of external facilitator experience of

facilitation and their role and activities to augment the implementation of an EBP. Demographic information such as gender, healthcare role, and years of experience were collected at the completion of the interview (Appendix G).

Concurrent data collection and analysis was used for ongoing engagement with data to confirm, test, explore, and expand data (Thorne, 2008). Audio recordings were transcribed using Landmark Associates Inc. (LAI), a web-based transcription and translation service (LAI, 2018). LAI uses cloud-based technology and the company's policies adhere to web-based Health Insurance Portability and Accountability Act (HIPAA), Collaborative Institutional Training Initiative (CITI), and National Institutes of Health (NIH) requirements for handling of sensitive material and data confidentiality (LAI, 2018). The transcription was sent to the investigator's University of Arizona email address, and the investigator reviewed the transcription for completeness and compared it word for word to the phone interview recording. The investigator stored the transcription in her University of Arizona Box account on a password-protected laptop that was not accessible to others, thus maintaining security. The transcribed interviews were uploaded into Atlas.ti (2017), a web-based software program for managing qualitative data using text, audio, photos, and spreadsheets. Atlas.ti (2017) has encrypted technologies that safely secures data. Separately, the investigator created an Excel spreadsheet for recordkeeping and organization purposes. Information in the spreadsheet included: 1) participant number (e.g., #1, #2, etc.), name, and contact information; 2) scheduled interview date; 3) date interview was completed; 4) date interview was transcribed; 5) participant reviewed the transcribed interview (member checking); and 6) professional role.

Interview Questions

Interview questions, in alignment with specific research aims, are listed in Appendix H and I. There were two sets of interview protocols, one for neonatal healthcare clinicians and the second interview protocol for external facilitators. The i-PARIHS conceptual framework, findings from the literature review, and the construct of facilitation and its sub-elements (facilitation purpose, facilitator role, and facilitator skills and attributes) guided the development of the interview questions.

Field testing of interview questions can be done to enhance validity for data collection and study outcomes (Brown, Lindenberger, & Bryant, 2008). To increase face validity, the two interview protocols were subjected to field testing by 5 reviewers: three academic nurse researchers, the Chief Medical Officer (CMO) of CPQCC, and a registered nurse (RN) who is CPQCC's QI program manager. The two CPQCC members are content experts in quality improvement and have an excellent understanding of CPQCC's Antibiotic Stewardship Collaborative. Two nurse researchers provided recommendations to increase clarity of interview questions and both the CMO and CPQCC RN offered suggestions to differentiate between CPQCC Collaborative participation versus NICU QI participation. Additionally, the CMO requested that maximum and minimum facilitator support be defined in the facilitator interview protocol.

Protection of Human Subjects

Creswell and Poth (2017) suggested that ethical issues need to be considered throughout the entire research process. The three core principles in research are respect for persons, concern for welfare, and justice (Creswell & Poth, 2017). Concern for welfare requires researchers to not

place participants at risk, such as the potential for power imbalances if participants solicited for study involvement are also employed in the organization in which the innovation took place (Creswell & Poth, 2017). Researchers need to be cognizant of biases and their potential impacts on participants and research findings and put mechanisms into place to maintain research ethics and safeguard participants as well as the integrity of study results. Many of these principles can be accomplished by the researcher by establishing scientific rigor or trustworthiness. In this dissertation study, participants were assured and understood that their participation was entirely voluntary and that they had the right to withdraw from the study at any time (Creswell & Poth, 2017).

Privacy is an overarching concept in maintaining confidentiality and reducing the risk of harm to human subject participants (HHS, 2016). Kaiser (2009) stated that confidentiality should be addressed during research planning and later at three points during the research process: data collection, data cleaning, and dissemination. During the informed consent process, study participants were made aware that information provided to the investigator was de-identified and names changed in the phone interview transcriptions (Kaiser, 2009). An example of a confidentiality concern in this dissertation study was the use of quotes in the study write-up. The public may not be able to identify the participant; however, peers or other study participants may be able to glean the identity of the participant based on quotes included in the study write-up. One way to assuage this concern was to provide the quote to the participant and seek consent for use. Also, the investigator considered participant harm when discussing aspects of the interview. For example, a participant may view his or her experience in the EBP as a failure, so the investigator was cognizant that issues like this may arise.

Conflict of Interest

Researchers need to remain objective, ensure protection of human subject participants, and uphold scientific integrity. As a volunteer member of PQIP, which is a subcommittee of CPQCC, the investigator participated in the decision-making process to determine that CPQCC's QI collaborative would be antibiotic stewardship in the NICU. The collaborative time frame was from June 2016 through December 2017, and subsequently, the investigator had no personal involvement in the collaborative other than updates during monthly PQIP meetings. In both the recruitment email and recruitment script (Appendix B and C), the investigator disclosed that she was a member of PQIP and that results from this qualitative descriptive study would be used to assist in the development of future neonatal collaboratives using a facilitator-assisted model. The investigator recognized the potential bias and researcher influence this posed to the study and study participants and employed mechanisms to ensure scientific rigor. Mechanisms to ensure scientific rigor will be discussed in the Trustworthiness section in this chapter.

Data Management

Qualitative data can be obtained from a variety of sources, including texts, observations, interviews, focus groups, archival documents, casual conversation, participant journaling, and audiovisual materials (Patton, 2002; Thorne, 2008; Creswell & Poth, 2017). Thorne (2008) described data management as consisting of tracking, organizing, protecting, and sorting one's data. Transcribed interviews were numbered, and pseudonyms used when necessary, to protect confidentiality and anonymity (Miles, Huberman, & Saldana, 2014). Miles et al. (2014) cited three issues about data management: accessibility to high-quality data, documentation of the analyses that occurred, and preservation of data and analyses following the study. Atlas.ti

provided the platform to achieve accessibility, data analysis documentation, and preservation of data. Data files were secured in the investigator's University of Arizona Box account that was accessible on a password-protected laptop. The Atlas.ti software program was also on a password-protected laptop. An additional consideration with data management involves backing up data to prevent loss, damage, erasure, or vandalization (Miles et al., 2014). A password-protected USB drive was the source for data backup and protection.

Data Analysis

Qualitative data analysis is comprehensive and incorporates data organizing, reading and verifying interview transcripts for accuracy, coding, generating themes, and, finally, interpreting of the data (Creswell & Poth, 2017). However, for this qualitative descriptive dissertation study, the investigator did not interpret the data, rather described the experience of facilitation from the perspective of neonatal healthcare clinicians and external facilitators during the implementation of EBP in a neonatal intensive care unit. Concurrent data collection and analysis was carried out and assisted in the development of labels, code groups, and emerging themes.

Coding Process

The investigator used deductive and inductive coding to organize and manage the data corpus. Deductive coding involved a priori development of labels and categories before the start of the study. These codes can come from conceptual frameworks, published research on the concept or phenomenon, research questions, or key variables (Miles et al., 2014). The taxonomy of facilitation activities, strategies, and facilitator role synopsis developed by Dogherly et al. (2010) was used to construct a priori labels and categories.

First-cycle coding phase. In first-cycle coding phase, open and line-by-line coding was undertaken using process and in-vivo coding. The goal of open coding is to generate as many conceptual labels as possible that described the data (Wuest, 2012). Line-by-line coding was used as suggested by Saldana (2016) so that data can be broken down into “lumped” or “split” data; split data are smaller data pieces and increases the trustworthiness of the results. The process of facilitation and participants’ experience with facilitation was a research aim; therefore, the investigator used process coding as a first-cycle coding method. Implying that the process of facilitation was action-oriented, the investigator assigned gerund words (verbs functioning as a noun and ending with “ing”) to the meaning of each line (Saldana, 2016). When examining processes, one explores actions that occurred over time and changes that emerged or happened over specific sequences or became strategically implemented (Saldana, 2016). The Antibiotic Stewardship Collaborative spanned one year with multiple interactions (i.e., representing processes) between the external facilitators and neonatal healthcare clinicians, and therefore, process coding was an appropriate first-cycle coding method. The process of facilitation is coded and examined through this lens. An example of a process coding label assigned was “creating an action plan” with the label definition as “assisting with development of an action plan.” Process coding analysis was used with interview questions that pertained to the purpose, role, or skills and attributes of the external facilitator. All a priori labels for process coding were extrapolated from Dogherty and colleagues (2010) taxonomy of facilitation. See Appendix J for the list of coding labels and associated definitions.

A second research aim was exploring the experience of the facilitator role and in-vivo coding, using participants’ words or short phrases from the data, was carried out to extract

meanings and explore facilitation (Saldana, 2016). In-vivo coding is consistent with constructionism paradigm and qualitative descriptive research in which participants' experiences with a phenomenon are described, in-vivo coding "honor (s) the participant's voice" (Miles et al., 2014, p. 74). In-vivo coding permitted the investigator to inductively analyze the data and allowed for emerging themes to come through that was reflective from the data (Saldana, 2016). In the first cycle coding phase, in-vivo coding generated 467 labels.

Second-cycle coding phase. Second-cycle coding is a means to reorganize and reanalyze the data with a primary goal of reducing the data into categories, themes, concepts, or theories (Saldana, 2016). The investigator applied pattern coding, which was used to identify similarly coded data and provided meaning to that arrangement. For those codes that did not fit into the a priori categories inferred from the taxonomy on facilitation (Dogherty et al., 2010), inductive coding was performed which allowed for sub-themes and themes to emerge from the codes. Labels were reduced and reorganized resulting in 30 code groups. Four of the 30 code groups were identified a priori and based on categories described on a taxonomy of facilitation interventions and strategies and facilitator role synopsis (Dogherty et al., 2010). The four a priori code groups were: a) planning for change; b) leading and managing change; c) monitoring progress and ongoing implementation; and d) evaluating change (Dogherty et al., 2010; Appendix J). Many of remaining 26 code groups or "sub-themes" that emerged aligned with constructs of the i-PARIHS framework.

Content Analysis

Following first- and second-cycle coding phases, data analysis can occur. Content analysis was the analysis of choice this qualitative descriptive research. Staying "close to the

data" during analysis was integral for the investigator to maintain so that participant description of facilitation was not influenced by the investigator's interpretation of the data (Neergaard et al., 2009). For this dissertation study, the investigator used directed content analysis with a priori coding labels, coding label definitions, and categories generated from a taxonomy of facilitation activities, strategies, and facilitator role synopsis and the constructs of the i-PARIHS framework (Dogherty et al., 2010; Harvey & Kitson, 2016). The themes that emerged addressed the dissertation study's two aims and associated research questions. Chapter IV will provide a summary of study findings.

Trustworthiness

Establishing scientific rigor is a feature of a good qualitative study (Creswell & Poth, 2017). In this qualitative descriptive study, the investigator served as an apparatus for collecting data and thus an instrument in describing the neonatal healthcare clinicians' and external facilitators' experiences during the NICU QI Antibiotic Stewardship Collaborative (Creswell & Poth, 2017). Lincoln and Guba (1985) identified four strategies to ensure trustworthiness in a qualitative study: 1) credibility, 2) transferability, 3) dependability, and 4) confirmability.

Credibility

Mechanisms to establish credibility included documenting reflections (reflexivity) of the researcher's ongoing subjectivity, conceptual experiences, values, and meanings; the investigator utilized note-taking, peer-mentoring, and journaling to enhance credibility (Lincoln & Guba, 1985; Thorne, 2008). Member-checking and participant feedback are critical in verifying the accuracy of data and establishing credibility (Lincoln & Guba, 1985; Creswell & Poth, 2017). Transcribed interviews were verified against the recorded interview and then emailed to the

study participants for member checking with instructions to review the transcription and confirm that the meanings of their answers reflected their experience. Four of the eight participants responded confirming the transcription accurately described their responses to the interview questions. Out of those four, two participants made syntactic changes to their transcription, but the meanings behind their responses were not altered. Peer debriefing is another mechanism to ensure credibility (Lincoln & Guba, 1985) and the investigator performed peer debriefing with her dissertation chair, Dr. Sheila Gephart.

Transferability

Transferability is the extent to which the results can be generalizable to other settings or contexts (Trochim, Donnelly, & Arora, 2016). To enhance transferability, the investigator provided a detailed description of study participants that included sample characteristics such as gender, race, professional role, years of experience, etc.; research design; study location; and roles of study participants. These detailed descriptions allow readers to make an informed decision if study findings are transferable to other populations and settings.

Dependability

Dependability of qualitative research findings is based on whether they are consistent, repeatable, and credible over time (Lincoln & Guba, 1985; Trochim et al., 2016; Creswell & Poth, 2017). Dependability is accomplished through an inquiry audit, which examines the process and the results of the data collected, analyzed, and interpreted for accuracy (Lincoln & Guba, 1985). To adhere to the tenets of dependability, the investigator documented the research design, methodology, and data collection methods and engaged in reflexivity activities such as journaling.

Confirmability

Confirmability is the point at which study results can be confirmed or validated by others (Lincoln & Guba, 1985; Trochim et al., 2016). An audit trail is utilized to determine confirmability (Lincoln & Guba, 1985). The investigator's audit trail consisted of: a) record-keeping and note-taking; b) confirmation of raw data between phone recordings and transcripts; c) a detailed description of data collection and analysis process; d) reflexivity; and e) data collection and analysis that answered the two research aims and associated research questions.

Summary

In conclusion, Chapter 3 discussed ways to maintain integrity regarding research involving human subjects and relied on the investigator's ability to protect human subject participants and safeguard autonomy, privacy, and confidentiality. The overall research design and methods were discussed in detail to support the foundation for this dissertation study. Finally, scientific rigor is reviewed, which is necessary to uphold research standards, both for human subject participants and the research community.

CHAPTER IV: RESULTS

Chapter 4 includes sample characteristics of the neonatal healthcare clinicians and external facilitators for this dissertation study. The sub-themes and five themes that emerged from data analysis on the process of facilitation to foster implementation of evidence-based practice in a NICU as described by neonatal healthcare clinicians and external facilitators are presented.

The central research aim of the study was to describe the implementation strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators. While the external facilitators provided some benefit with implementing an EBP, there were challenges experienced by both the external facilitators and NICU healthcare clinicians during the process of facilitating the EBP into the individual NICUs. The following sections will summarize the research process and study findings that answer the study's two aims and associated research questions. To review, the specific aims and associated research questions for this study are:

Aim1: Describe the implementation strategy of facilitation with implementing an EBP from the perspective of external facilitators and neonatal healthcare clinicians.

RQ 1.1 What are the elements and characteristics of facilitation?

RQ 1.2 What are the barriers in the process of facilitation?

RQ 1.3 What are the successful drivers or enablers with the process of facilitation?

Aim 2: Describe the external facilitator role from the experience of external facilitators and neonatal healthcare clinicians.

RQ 2.1 From the perspective of external facilitators and neonatal healthcare clinicians, what factors influence the effectiveness of the external facilitator role?

RQ 2.2 From the perspective of external facilitators and neonatal healthcare clinicians, what are the benefits and challenges of facilitators who employ the “doing for others” approach and administer practical support compared to those using a more “enabling others” approach?

Consistency of the data was achieved with eight interviews (four external facilitators and four neonatal healthcare clinicians) as there were no new themes or ideas that was reflective in the data. Phone interviews ranged from 18 to 50 minutes in length. Table 3 provides an overview of study participant characteristics by gender, race, profession, number of years in the profession, highest level of education, level of NICU, NICU designation, and hospital American Nurses Credentialing Center (ANCC) Magnet status. While achieving Magnet status is not the only indicator that organizations are engaged in quality improvement work, the fourteen core Magnet characteristics does provide a foundation for quality improvement to organizations and the investigator was interested in knowing if the neonatal healthcare clinicians worked in a Magnet designated organization. The American Academy of Pediatrics (AAP, 2012) has published uniform definitions of levels of care ranging from Level I – Level IV NICU with Level IV NICUs providing the highest capability of neonatal care to include subspecialty services. The NICU designation is determined by California’s Department of Health Care Services division of California Children’s Services (CCS, 2018), and the NICU designations are intermediate,

community, and regional. Table 4 provides an overview demographics with similar categories for the external facilitators.

TABLE 3. *Demographics of facilitated participants (neonatal healthcare clinicians, n =4)*

| Study Participant | Number (percentage) or Median (range) |
|-----------------------------------|--|
| Gender | |
| Female | 3 (75%) |
| Male | 1 (25%) |
| Race | |
| Hispanic/Latino | 2 (50%) |
| White | 1 (25%) |
| Asian | 1 (25%) |
| Age in Years | 51.5 (39-59) |
| Profession | |
| RN | 1 (25%) |
| NP | 1 (25%) |
| CNS | 1 (25%) |
| MD | 1 (25%) |
| Years in Profession | 27.5 (3.5 – 39) |
| Highest level of education | |
| Bachelor | 1 (25%) |
| Master | 2 (50%) |
| Doctoral | 1 (25%) |
| Level of NICU | |
| Level III | 4 (100%) |
| NICU Designation | |
| Intermediate | 1 (25%) |
| Community | 3 (75%) |
| Magnet Hospital | |
| Yes | 0 |
| No | 3 (75%) |
| I don't know | 1 (25%) |

TABLE 4. *Demographics of external facilitators (n = 4)*

| External Facilitator | Number (percentage) or Median (range) |
|-----------------------------|--|
| Gender | |
| Female | 4 (100%) |
| Male | 0 (0%) |
| Race | |
| Hispanic/Latino | 1 (25%) |
| Asian | 3 (75%) |
| Age in Years | 54 (36-68) |
| Profession | |
| MD | 4 (100%) |

TABLE 4. – *Continued*

| External Facilitator | Number (percentage) or Median (range) |
|-----------------------------------|--|
| Years in Profession | 34.5 (10 - 39) |
| Highest level of education | |
| Doctorate | 4 (100%) |
| Level of NICU | |
| Level III | 2 (50%) |
| Level IV | 2 (50%) |
| NICU Designation | |
| Regional | 4 (100%) |
| Magnet Hospital | |
| Yes | 2 (50%) |
| No | 2 (50%) |

Table 5 shows if the study participants (neonatal healthcare clinicians) had previous experience with either a CPQCC collaborative or a NICU QI model and if they received protected time at work to participate in the Antibiotic Stewardship Collaborative.

TABLE 5. *Previous CPQCC QI involvement and dedicated work-time.*

| Study Participant | Number (percentage) |
|--|----------------------------|
| Previous Participation in a CPQCC Collaborative | |
| Yes | 2 (50%) |
| No | 2 (50%) |
| Previous Participation in a NICU QI Model | |
| Yes | 0 (0%) |
| No | 4 (100%) |
| Protected Time | |
| Yes | 0 (100%) |
| No | 4 (100%) |

Five themes emerged from the data analysis that described the strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators: a) facilitated change management; b) unit/organization receptivity; c) evaluation strategies; d) supportive culture; and e) facilitator stewardship. To review, in the first-cycle coding phase, labels were identified a priori from the taxonomy of

facilitation (Dogherty et al., 2010) or in-vivo codes. In the second-cycle coding phase, labels were reorganized and recategorized into a priori categories from the taxonomy of facilitation or emerging sub-themes. Many of the inductive sub-themes aligned with the i-PARIHS constructs of innovation, recipient, and context. Table 6 summarizes results across first- and second-cycle coding phases and overall themes.

TABLE 6. *Results across first and second coding cycles with subsequent themes.*

| First-Cycle Coding Codes | Second-Cycle Coding Sub-themes | Theme |
|--|--|--------------------------------------|
| “This was also not only having the help of the external facilitator, but it was supposed to be like with other hospitals.” | Community of learning | <i>Facilitated Change Management</i> |
| Creating an action plan Identifying EBP barriers Sharing decision making | Planning for change (Dogherty et al., 2010) | |
| Providing resources for change Adapting evidence Building teams Encouraging team participation Empowering Giving practical assistance | Leading and managing change (Dogherty et al., 2010) | |
| Solving problems Mentoring Maintaining momentum Providing support Communicating well | Monitoring progress and ongoing implementation (Dogherty et al., 2010) | |
| Assessing change Linking evidence to outcomes Acknowledging success | Evaluating change (Dogherty et al., 2010) | |
| “It was to reduce our antibiotic usage. We did have a problem in our NICU, so we knew it was something we needed to address.” | Purpose of facilitation/EBP | |
| “Having our data analyst really helped. As I had mentioned, she was our driving force behind the collaborative, really making sure our data was collected, entered, and reported. So that really helped us focus on the clinical changes in our NICU.” | Human resource allocation (recipient: driver & barrier) | <i>Unit/organization receptivity</i> |
| “They had no QI head.” | | |
| “So most of the things I do, I do when I’m actually working. So, I would, like, um – if we’re slow, um, that’s when I would do all the QI stuff.” | Work-time allocation (recipient: barrier) | |

TABLE 6. – *Continued*

| First-Cycle Coding <i>Codes</i> | Second-Cycle Coding <i>Sub-themes</i> | Theme |
|--|---|------------------------------|
| “Our NICU is very motivated to promote practice changes and really be up-to-date on the current guidelines, and really make beneficial changes. Though when it comes to financial involvement, it becomes more difficult to participate in collaboratives. It’s not an interest barrier because we have the interest. It’s more of a financial barrier.” | Financial resources (context: barrier) | |
| “Balancing, experienced neonatologists (the way they practice), with more current evidence-based guidelines, and it’s still a challenge now.” | Evidence versus clinical experience (barrier) | |
| “Outreach to the, to the people who don’t know what to do about getting QI done.” | Barriers to participation (barrier) | |
| “Pharmacists would come when we had babies on the antibiotics like that.” | Pharmacy resources (context: driver) | |
| “We have room for improvement and to standardize practice across units.” “Several caregivers reluctant to do that based on the clinical presentation or based on the fact that there was high band count or high CRP with blood cultures being negative.” | Receptivity to change (context: driver and barrier) | |
| “They created order sets that kind of supported the behavior that they were looking for.” | Technological resources (context: driver) | |
| “The way they collect their culture – did they follow what’s recommended, um, you know, by other evidence-based studies that you have – you should have at least one cc of blood, um, to get a more accurate, you know, um, result.” | Process improvement (driver) | |
| “Created a board ... in the NICU where we print out all our ... data. So, our antibiotic use is – is there now for everyone to see ... the parents, the family members, they can see it.” | Evaluation capabilities (context) | <i>Evaluation strategies</i> |
| “Monthly women and children’s collaborative, we would present our data and as a group (a multidisciplinary group), we reviewed the data and discussed our practices changes, and really made it a focal point of our monthly meetings.” | Unit/organizational feedback and audit (context) | |
| “Really great was when the pharmacist did get educated and buy in. When they attended grand round, they always gave the blood culture results. They gave the sensitivities. They give the peaks and troughs. They talked about what would work best for this, what the new evidence was, what you know so they really engaged,” | Culture (context) | <i>Supportive culture</i> |

TABLE 6. – *Continued*

| First-Cycle Coding <i>Codes</i> | Second-Cycle Coding <i>Sub-themes</i> | Theme |
|--|--|--------------------------------|
| <p>“No head from nursing leadership or QI.”</p> <p>“Now our CNO’s, um – you know, I feel like we have her support a hundred percent.”</p> | Leadership (context) | |
| <p>“Both the physician and the nurse coordinator/the nursing leader who did their data, both of them were very engaged and I felt like I had a good rapport with them.”</p> <p>“The second center, which is an in-between center, engaged a couple of times, you know participated in one or two phone conferences, they did submit some data to the extranet throughout the period but weren’t like engaged throughout the year.”</p> | Team engagement (recipient) | |
| <p>“Nursing, medicine, pharmacy, lactation, housekeeping, case management, um, supply management, the director of maternal child, the parents, all of it.”</p> | Multidisciplinary collaboration (recipient) | |
| <p>“Been more successful, I think, if we had had local teams.”</p> | Facilitator and team assignment | <i>Facilitator Stewardship</i> |
| <p>“Point person needs to be changed to nursing leadership and also to have a physician.”</p> | Facilitator challenges | |
| <p>“E-mails, there was never any response. I sent out multiple emails, and no luck.”</p> | Facilitator scheduling | |
| <p>“It’s important for, um, any of the team players to have a good relationship with the facilitator.”</p> | Facilitator and team relationship | |
| <p>“Every interaction was polite and respectful.”</p> | Facilitator characteristics (i-PARIHS) | |
| <p>“We drew the line at, um, giving them expert advice about specific cases, expert advice about their practice.”</p> | Facilitator role (i-PARIHS) | |
| <p>“Let’s get clarity on this ... we’re gonna talk to the folks at ... CPQCC, and we’ll get back to you, and that was kind of a typical way we would handle situations if they weren’t real obvious right off the bat.”</p> | Facilitator purpose (i-PARIHS) | |
| <p>“I had to be flexible about where they were at in their change process at the time of our conversation.”</p> | Facilitator skills and attributes (i-PARIHS) | |

Summary of Findings

Theme One: Facilitated Change Management

The facilitated change management theme addresses RQ 1.1: What are the elements and characteristics of facilitation? Many QI initiatives seek to improve a process or clinical outcomes, and the outcome measure in the Antibiotic Stewardship Collaborative was to reduce AUR. Study participants and external facilitators felt that the purpose of the EBP, antibiotic stewardship, was valuable and important. One participant stated, *“I personally felt we had a strong need, and I felt like this was a very good involvement, for our NICU.”* An external facilitator aligned participation in the Antibiotic Stewardship Collaborative with a Joint Commission Standard (2016) on antibiotic stewardship, *“... hot topic, and you can use it for Joint Commission.”*

External facilitators described how they assisted planning the change by generating conversation and shared meaning for each NICU team at the beginning of the Antibiotic Stewardship Collaborative. One facilitator stated, *“The goal was we would send out an email, connect to the centers, and then have at least once a month contact with them for the 12-month period.”* Another external facilitator asked, *“How do you make a change in your organization?”* During the process of facilitation, external facilitators assisted in leading and managing change with individual sites by understanding that each site may have different implementation needs. One external facilitator stated, *“We actually took those collaborative change packages, gave it to the NICU QI 3.0 centers so that the centers at their own unit will pick and choose what they wanted to do.”* An external facilitator expressed, *“I encouraged them to come up with their goals, simple things like discontinuing antibiotics at 48 hours if the blood cultures are negative, making*

sure the blood culture is drawn before antibiotics are started.” Another quote from an external facilitator described one site’s goal as, *“To successfully change clinician behavior, which was a very big deal for them.”* As external facilitators monitored progress and ongoing implementation, one external facilitator described her interaction with a team as, *“Focusing every time on short, medium, and long-term and to make sure that they were able to be kind of moving towards all their goals.”* One external facilitator stated, *“... The role of the facilitator was never to tell you what to do, but to ask you what you’re doing and encourage you to keep doing a great job or perhaps suggest you could try something different.”* From the perspective of a participant, she also experienced support from one of the external facilitator’s and described the interaction as, *“I don’t know, they just ask questions, they’re not really judgy at all. What are your challenges in doing it the way that the recommendations are?”*

When evaluating change(s), one study participant stated her experience with an external facilitator as, *“Positive feedback when we were reaching our goals.”* Another participant expressed, *“We did a change, and we saw that it was working, she [external facilitator] was very much encouraging with that.”* One external facilitator stated that, *“Since I had seen their improvement data ... I reached out to them for them to present their work at CAN [California Association of Neonatologists].”* Both external facilitators and participants expressed the desire to have a community of learning during the collaborative that fostered an environment in which shared learning could occur but that did not happen because of low participation. One participant stated, *“So initially it was helpful, but after a while of having to do the monthly meetings, it became a bit redundant. So, we weren’t getting much benefit out of it, especially since we weren’t really able to collaborate with any of the other centers that were in the, in the QI*

collaborative.” One external facilitator described that it would have been, *“Much easier if the centers talked to each other on the conference and said, ‘Okay, we are doing this. This doesn’t work, or we are doing this, and this works.’”* Another participant said, *“Our center was one of the only centers in our group that was participating.”*

Theme Two: Organization and Unit Receptivity

The second theme to emerge, “organization and unit receptivity,” describes the various barriers and drivers of facilitating an EBP into the individual NICUs. As previously discussed, 10 of the 13 NICU sites that initially enrolled for external facilitator NICU QI did not maintain active engagement throughout the Antibiotic Stewardship Collaborative. This high rate of self-attrition may speak to organization and unit receptivity; however, the sections below describe only the experience of unit and organizational receptivity by participants and external facilitators because it was outside the scope of this project to recruit those who did not experience “facilitation.”

Receptivity barriers. The barriers of unit and organizational receptivity answer RQ 1.2: What are the barriers in the process of facilitation? One external facilitator described her perceived barrier to participation as, *“We were late in engaging them. So, like I think they should ideally be introduced to their mentor when they sign up.”* Another external facilitator stated, *“People who just don’t want a commitment, you know, and commitment for a year is a long time to say ‘I’m gonna have the staff and everything.’”* A third facilitator expressed, *“I couldn’t understand why you wouldn’t want to participate in something that was free.”*

There were also human resource and work-time allocation barriers experienced by participants and external facilitators. One study participant described lack of human resources

that posed challenges during the collaborative as, *“It got a little stressful because we were so busy here and we ... [were] short staff.”* One participant stated, *“We have not been able to accomplish [getting blood culture results], because during the weekend, it’s so hard to get cultures here. And that is, like you know, just either learn to live with [it] ... it’s like just do our best when it comes to weekends.”* An external facilitator described the lack of human resources with, *“They had no QI head.”* Having designated work-time was also a barrier and one participant described allocated time for QI work as, *“There’s no designated time. We’re only allowed, like, four hours of admin time every week, and that includes all the things that we have to – to do, like evals, policies, everything.”* Another participant stated, *“So most of things that I do, I do when I’m actually working. So, I would, like, um – if we’re slow, um, that’s when I would do all the QI stuff.”*

Participants also felt the constraints of finances and one participant stated, *“Do we buy the new ventilator that we’ve been so lacking, or do we participate in a collaborative here which may or may not show beneficial results?”* – this participant further expressed, *“Our NICU is very motivated to promote practice changes and really be up-to-date on the current guidelines, and really make beneficial changes. Though when it comes to financial involvement, it becomes difficult to participate in collaboratives. It’s not an interest barrier because we have the interest. It’s more of a financial barrier.”* Another participant described financial barriers as, *“We have to justify the amount of people that we use in – you know, in the unit. We don’t wanna go over our budget.”* One final barrier was the challenge of trying to make a practice change based on evidence versus clinical experience. One participant described it as, *“Balancing experienced*

neonatologists (the way they practice) with more current evidence-based guidelines, and it's still a challenge now."

Receptivity drivers. The drivers of unit and organizational receptivity answer RQ 1.3: What are the successful drivers or enablers with the process of facilitation? Two successful drivers that improved the success of facilitating the EBP change were pharmacy and technological resources. In one unit, "[they] *assigned a pharmacist to fit inside the unit*" and another participant described both pharmacy and technological resources by, "*Time-out, um, and um, again, it's basically in – um, making sure that we have someone from pharmacy that's always there to, um, monitor all our babies that are on antibiotics.*" An external facilitator described one unit's technological resource as, "*They created order sets that kind of supported the behavior that they were looking for.*" Another facilitator stated for one unit, "*It was part of their admission documentation and then also part of their ordering system.*" Because of widespread use of electronic health record systems, it is likely that participants were referring to changes that they made within their EHR to support the EBP change.

Participants described prior experience with process improvements as a driver in facilitating the EBP change. One participant stated, "*A lot of the other recommended changes from the collaborative, we had already been doing prior to participation, such as hard stops on antibiotics after 48 hours, obtaining blood cultures prior to starting antibiotics. So those things we already had in place, so it wasn't really impactful for us because we were already doing that. But those other practice changes were helpful for us.*" Regarding ordering of antibiotics, one participant said, "*They ordered it for short periods that caused them to... have [a] discussion at the time of renewal.*" An external facilitator described one aspect of process improvement as,

“This different variation in practice related to either NICU admission and/or antibiotic use for healthy term, late preterm babies.”

Receptivity to change: Barriers and drivers. In the sub-theme, “receptivity to change,” both barriers and drivers were experienced in a unit or one’s own capacity for change. One participant stated, *“My organization doesn’t like to pay out for anything”* and another participant expressed that, *“Several caregivers were reluctant to do that based on the clinical presentation or based on the fact that there was a high band count or high CRP with blood cultures being negative.”* An external facilitator described receptivity to change as, *“We have room for improvement and to standardize practice across units.”* One participant stated, *“These are our stats, this was our goal, this is where we came from, and this is where we went to.”*

Theme Three: Evaluation Strategies

The third theme, “evaluation strategies,” helps to answer RQ 1.3: What are the successful drivers or enablers with the process of facilitation? The three individual NICU sites had different evaluation capabilities to monitor their progress and outcomes during the collaborative. One participant stated, *“[we] created a board ... in the NICU where we print out all our ... data. So, our antibiotic use is – is there now for everyone to see ... the parents, the family members, they can see it.”* Another participant expressed, *“... That started helping us having that time out when we had rounds. So, and then what we started doing is just including it in our notes.”*

Another evaluation strategy employed by the NICUs was unit and organizational level audit and feedback. One participant described the evaluation strategy used was at the *“Monthly women and children’s collaborative, we would present our data and as a group (a multidisciplinary group), we reviewed the data and discussed our practice changes, and really*

made it a focal point of our monthly meetings.” This same participant also stated, [we] “Presented our data to our surveyors as one of the QI projects that we were involved in, and they really liked what they saw.” Another participant indicated, “Our hospital was behind our efforts, and really commended us for what we were doing.”

Theme Four: Supportive Culture

The fourth theme to emerge was “supportive culture” and the sub-themes that corroborate this theme include culture, team engagement, multidisciplinary collaboration, and leadership. In two of the sub-themes, leadership and team engagement, some barriers emerged in describing the process of facilitation (RQ 1.2). However, in general, the theme of “supportive culture” answers RQ 1.3: What are the successful drivers or enablers with the process of facilitation?

One external facilitator described her perception of the NICU’s culture as, *“Providing credit to each other for the different things that happened.”* One participant stated that communication about antibiotic use increased during rounds with, *“Nurses to say, I don’t have any lines for this ... it caused us to talk about it every day and to remain engaged.”* Multidisciplinary collaboration was experienced by all participants with one participant saying, *“Let’s talk about what everybody’s thoughts are.”* This participant also expressed, *“Pharmacists being able to pipe in about their knowledge of how the antibiotics were working together and that this might be better and that though they were sensitive to both, this baby doesn’t seem to be tolerating this, you know, all the, it was really nice to allow everybody’s thoughts.”* Another participant stated, *“The physicians – all the physicians that we have, um the pharmacist, our clinical nurse specialists, um, and uh, bedside nurses, because they are aware of, you know, how we’re monitoring all our antibiotic use. So again, during the rounds, they discuss all these*

things. So, everybody, I would say is on board with it.” There were both drivers and barriers with the sub-theme leadership; one leadership driver was expressed by an external facilitator as the, *“Physician champion was really focusing on change management within the clinical group. Um, so two very clear roles, but they worked very well together and collaborated together.”* Another participant stated that, *“Now our CNO’s, um – you know, I feel like we have her support a hundred percent.”* A barrier of leadership experienced by one participant was, *“They do not support anything that has to do with giving out money”* and an external facilitator expressed, *“[they] had no head from nursing leadership or QI.”* There were also drivers and barriers to the sub-theme, team engagement. A driver described by an external facilitator was, *“Both the physician and the nurse coordinator/the nursing leader who did their data both of them were very engaged and I felt like I had a good rapport with them.”* Another external facilitator stated, *“The group that was most actively engaged there was a physician champion who was on almost all of our calls. There was a nurse leadership champion who was on all the calls. And she was sort of responsible for project managing if you will and bringing everybody together and also making sure the data was all taken care of.”* Another facilitator experienced both a driver and barrier with team engagement, *“But they were movin’ right along. Mind you it took about four months to get that going.”* One participant described her experience with the external facilitator as being, *“More way engaged in the beginning than they are in the middle and as time goes by.”*

Theme Five: Facilitator Stewardship

The fifth theme, “facilitator stewardship,” addresses RQ 1.2: What are the barriers in the process of facilitation?; RQ 2.1: What factors influence the effectiveness of the external facilitator?; and RQ 2.2: What were the benefits and challenges of facilitators who employ the

“doing for others” approach compared to those using a more holistic/enabling approach? Barriers to the process of facilitation include the external facilitator and team assignment, challenges, and scheduling. One external facilitator expressed the Antibiotic Stewardship collaborative may have, *“Been more successful, I think, if we had had local teams”* and another external facilitator had similar feelings and stated, *“Identify facilitators who know the center already.”* One external facilitator described an emotional challenge as, *“Disappointment when I didn’t get the kind of engagement and response from all three units or at least the two of the three units.”* Another facilitator stated that, *“I had very high set of goals and expectations.”* One external facilitator stated that the, *“Point person needs to be changed to nursing leadership and also to have a physician.”* External facilitators describe many issues with trying to reach out and schedule time with their assigned NICUs. An external facilitator stated, *“I reached out to all the contacts I had at the NICUs ... via email, and I also tried calling.”* This external facilitator was not able to get any of her assigned NICUs to participate with phone conferences or to put their data into the extranet and stated, *“Even with individual facilities, there was never – I could never get a group together.”* One external facilitator said, *“Physicians were either not available, or they were on sabbatical, and they had a lot of changeover of physicians.”* Additional comments about scheduling challenges were described as, *“Physicians were very difficult to contact. I was able to make contacts with either the nursing lead or the QI specialist. There was a lot of difficulty in getting hold of people.”* Finally, one external facilitator stated it *“took a very long time to connect with the centers.”*

Factors that influence the effectiveness of the external facilitator included the relationship, or lack of a relationship, that the facilitator developed with their assigned

collaborative team. One external facilitator expressed, *“Not knowing the centers personally, sometimes I felt like ... I was bothering them by repeatedly sending emails like ‘can we please pick a date, can you do the doodle poll for a standing monthly phone conference?’”* One participant stated, *“There wasn’t a lot of support that I was aware of, but I didn’t feel like they [external facilitator] were harassing us or anything”* Another participant said about the external facilitator, *“We trust their judgment, and I think they felt that our facility was really engaged in the process.”*

There were both benefits and challenges experienced by the external facilitators and participants as the external facilitator adapted along the continuum of facilitation. The external facilitators’ characteristics demonstrated this adaptation along the continuum of facilitation, role, purpose, and skills and attributes. Characteristics of the external facilitator as experienced by a participant was, *“She was respectful, at least, um, arranging her time. Because I ... know sometimes she was driving when [we had our phone conferences]. Respecting our times that we could have the[phone] conference ... and always respectful the way she spoke to us.”* One external facilitator expressed that participants were, *“Thankful that I was calling them.”* The role of the facilitator was described as, *“I had to be very flexible about where they were at in their change process at the time of our conversation.”* Another external facilitator viewed her role as, *“We drew the line at, um, giving them expert advice about specific cases, expert advice about their practice.”* A purpose of the external facilitator was to act as a liaison between CPQCC and neonatal healthcare clinicians, and one facilitator expressed this by saying, *“Let’s get clarity on this. Um, ‘we’re gonna talk to the folks at the, um, CPQCC’ and we’ll get back to you and that was kind of a typical way we would handle situation if they weren’t real obvious right off the*

bat.” Skills and attributes by one external facilitator were demonstrated with project management skills and described as, “... *Typically during the phone call I’d do a recap of what went on the call before.*”

Summary

Chapter 4 describes participants’ sample characteristics and five themes describing the implementation strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators. Chapter 4 concludes with a summary of research findings describing sub-elements (role, purpose, and skills and attributes) and characteristics on the construct of facilitation, drivers and barriers with the process of facilitation, factors that influence the facilitator role, and benefits or challenges of the facilitation continuum as experienced by neonatal healthcare clinicians and external facilitators. Chapter 5 will provide an in-depth discussion of study findings, implications for practice, and recommendations for future research.

CHAPTER V. DISCUSSION AND RECOMMENDATIONS

Chapter 5 begins with a discussion of the findings as they relate to the two study aims and the i-PARIHS conceptual framework. The chapter concludes with a discussion of study limitations, implications for nursing practice and recommendations for future research.

Discussion of Findings

Facilitation is an implementation strategy identified in implementation science literature that may help enhance the adoption and integration of EBP in a clinical setting. In this qualitative descriptive study, facilitation and the use of external facilitators was limited by high attrition, organizational resources, and contextual factors with the three individual NICUs that sustained engagement throughout the 12-month Antibiotic Stewardship Collaborative. In this chapter, the findings of the study and results summarized in Chapter 4 will be discussed more comprehensively by addressing the two study aims and their relation to the constructs of the i-PARIHS framework. As a review, the i-PARIHS framework involves thinking about *what* is to be implemented, *who* with and *where*, whereas facilitation address the *how* of implementation (Harvey & Kitson, 2016).

Study Aim One

Study Aim One was to describe the process of facilitation in implementing an EBP. For this study, the investigator defined facilitation as a process that enables or makes things easier for people in a collaborative learning environment. Before facilitation can occur, clinicians need to undertake an identified practice change, intervention, or program implementation. As this relates to antibiotic stewardship, neonatal healthcare clinicians and external facilitators perceived antibiotic stewardship as an important EBP change that may help reduce variation in clinical

practice and reduce antibiotic usage rate. Innovation, one of the characteristics of the i-PARIHS construct, is the degree of fit or the compatibility with existing practices and values. It is important to note that both neonatal healthcare clinicians and external facilitators felt that antibiotic stewardship was beneficial and would improve neonatal outcomes and process improvements by reducing variation in practice.

The external facilitators experienced significant barriers in trying to connect with their assigned NICUs and subsequently maintaining ongoing engagement and communication throughout the collaborative. Three of the four external facilitators had only one NICU they consistently communicated with and assisted throughout the Antibiotic Stewardship Collaborative. A fourth facilitator was not able to achieve communication with the sites to which she was assigned. While involvement in this NICU QI model using external facilitators for the Antibiotic Stewardship Collaborative was free from a monetary perspective, it may not have been considered “free” for those involved at the individual NICU sites. Involvement in a long-term collaborative includes resources for time, personnel, supportive technological needs, consideration of unit priorities, and implementation process provisions. The degree of attrition was also a significant challenge for neonatal healthcare clinicians and external facilitators as there was a lack of a “community of learning” environment. In a “community of learning” setting, QI teams share information, knowledge, and experiences; they also have opportunities to learn about successes and failures of their peers (Nembhard, 2012). It is unclear why 10 of the 13 sites either did not participate at all or stopped participating after starting the Antibiotic Stewardship Collaborative, but not having a “community of learning” environment was felt to be a vital barrier experienced by external facilitators and neonatal healthcare clinicians. The sample

for this qualitative study was primarily constrained to the three remaining sites that engaged in the process of facilitation.

In a 2015 study by Bareil and colleagues, external facilitators played an integral role by helping interprofessional teams establish implementation goals, discussing evidence-based information, and following up on the discussion from previous meetings. External facilitators also experienced this in the Antibiotic Stewardship Collaborative as they assisted individual NICU sites to plan for the change, lead and manage change, oversee progress and ongoing implementation, and evaluate the change via data collection and monthly review of antibiotic use rate during the phone conferences throughout the collaborative. Activities and strategies that the external facilitators used to help sites accomplish implementation goals were aiding sites to identify and specify implementation goals for their unit; help the teams define process and outcome measures; establish monthly phone conferences; encourage the teams to submit their data into the extranet site and provide positive feedback; and provide any additional support needed by individual NICUs. One external facilitator noted improvement in antibiotic use rate with her NICU antibiotic stewardship team, and she suggested they present a poster at the annual California Association of Neonatologists Cool Topics conference held in San Diego. This suggestion demonstrates the external facilitator was able to link the practice change(s) to outcomes and improved care processes, acknowledge the unit's success, and recognize their achievements. These strategies and activities performed by the external facilitators are consistent with Dogherty and colleagues (2010) taxonomy of facilitation interventions and strategies and facilitator role synopsis. The taxonomy of facilitation that outlines strategies and activities performed by facilitators is structured in specific stages related to the process of implementing an

EBP: 1) planning for change; 2) leading and managing change; 3) monitoring progress and ongoing implementation; and 4) evaluating change (Dogherty et al., 2010).

In this study, there were contextual factors that impacted adoption and implementation of practice changes in the individual NICUs. Successful contextual drivers that were experienced by neonatal healthcare clinicians may be conceptualized as the “QI culture” of the unit. Curry and colleagues (2017) published a mixed-methods study exploring a 2-year interventional experiment with 10 hospitals on organizational culture that influenced hospital performance in the care of myocardial infarction patients. The study demonstrated significant changes in culture between baseline and 24-months in all 10 hospitals ($p < 0.05$), mainly in senior management support ($p < 0.001$) and learning environment ($p < 0.001$; Curry et al., 2017). Qualitative data supported study outcomes and showed six of the 10 hospitals in the study exhibited significant cultural transformation across the six hospitals in domains such as learning environment, senior management, and psychological safety (Curry et al., 2017). Seminal work by Kahn (1990) defines psychological safety as the climate in which a person feels comfortable in being and expressing themselves without fear of negative effects on self-image, position, or job. Also described in the Antibiotic Stewardship Collaborative were similar successful contextual drivers as demonstrated by Curry and colleagues (2017) that increased the facilitation of EBP into individual NICUs, including unit culture; multidisciplinary collaboration; organizational and unit level feedback and audit; and accessible human, financial, and technological resources. However, in the Antibiotic Stewardship Collaborative, leadership was described as both a barrier and driver to the success of EBP facilitation. Ample research suggests that leadership engagement improves the quality of healthcare and reduces patient harm (Howard, Shaw, Felsen,

& Crabtree, 2012; Swensen, Dilling, Harper, & Noseworthy, 2012; Bender, Connelly, & Brown, 2013; Swensen, Dilling, McCarty, Bolton, Harper, 2013) and should be an important consideration when implementing a practice change, intervention, or program.

Study Aim Two

Study Aim Two was to describe the external facilitator role from the experience of external facilitators and neonatal healthcare clinicians. The primary factor that influenced facilitation and the role of external facilitators was the quality of the relationship each external facilitator had with its NICU teams. All the external facilitators felt that the overall success of the collaborative would have been improved with more engagement from the other NICUs if the external facilitators had a prior relationship with their assigned NICUs. Of the three NICUs that maintained engagement during the collaborative, the external facilitator was able to establish a rapport, and this was perceived as a positive influence for facilitating the EBP. The relationship the external facilitators had with their respective NICU teams supports the theme—relationship building—that was described in a focused review on the meaning of facilitation (Dogherty et al., 2010), and aligns with the holistic definition and approach of facilitation as described in the early development of the i-PARIHS framework (Harvey et al., 2002).

The process of facilitation spans a continuum representing the dynamic nature of facilitation and fluid nature external facilitators play in assisting with the implementation of an EBP into a NICU setting. The continuum of facilitation extends from a purposeful task-oriented “doing for others” to a more holistic “enabling others” approach; to function effectively, external facilitators need to be able to move along the continuum of facilitation (Harvey et al., 2002). In this study, all external facilitators expressed they perceived their role as creating a more holistic

facilitation approach; however, most of their activities or strategies fell into the task-oriented continuum of facilitation as it relates to the external facilitators' role, purpose, and skills and attributes (Dogherty et al., 2010; Table 7).

TABLE 7. *External facilitator activities and strategies on continuum of facilitation*

| External Facilitator | Task-Oriented | Holistic |
|------------------------------|---|---|
| Role | External agents Low intensity | Internal and/or external agents High intensity |
| Purpose | <i>Doing for others:</i> Episodic contact Practical and technical assistance | <i>Enabling others:</i> Sustained partnerships Developmental |
| Skills and Attributes | <i>Task/Doing for others:</i> Technical skills Subject, technical, and clinical credibility | <i>Holistic/enabling:</i> Critical reflection Realness and authenticity |

These study findings suggest that the effectiveness of external facilitators requires continuous assessment of the innovation being implemented by the recipients in their context. Study findings further support the concept analysis on facilitation done by Harvey and colleagues (2002) that facilitators need to be “flexible and possess a range of both task-focused and enabling skills, which are employed according to the needs of the context or environment in which they are working” (p. 586).

Findings in Relation to the i-PARIHS Conceptual Framework

In the i-PARIHS conceptual framework, innovation is defined as a general term to describe evidence from research, clinical, patient, and local experiences (Harvey & Kitson, 2016). In this study, antibiotic stewardship was the EBP that was being implemented. When we looked at one characteristic of innovation—relative advantage—all external facilitators and neonatal healthcare clinicians described that antibiotic stewardship might help reduce variation

in practice and antibiotic use in newborns. Relative advantage is the level at which the innovation is perceived as an improved change to the current method in place (Rogers, 2003).

Recipient is a newly added construct to the i-PARIHS framework, and recipients are people who can influence the innovation or people who may be affected by the innovation (Harvey & Kitson, 2016). When we explore a unit's receptivity towards change and its QI culture, it is vital for external facilitators to understand the recipient(s) time and resource availability, motivation, and collaboration and teamwork culture. In this study, collaboration and teamwork were drivers that increased the adoption and implementation of antibiotic stewardship. Even though participation in the external facilitator QI model was free, recipients' time and resources were a barrier to implementing changes in the NICU. While recipients did not have to pay \$7000 for collaborative enrollment, it is questionable how "free" the participation in the Antibiotic Stewardship Collaborative was to the recipients and their respective NICUs. Researchers and clinicians should deliberate the associated human and financial costs that may be incurred when developing and implementing a quality improvement initiative, practice change, or program. While each of the three NICUs found relative success in achieving the EBP change, the associated human and financial resources were perceived as barriers during the Antibiotic Stewardship Collaborative by the recipients, both neonatal healthcare clinicians and external facilitators.

The construct of context in the i-PARIHS framework is the environment in which the innovation is being implemented, and context can be at the local, organization, or community level (Harvey & Kitson, 2016). Factors that influence implementation of an EBP at the context level include formal and informal leadership support, culture, mechanisms for embedding

change, experience with change, and evaluation and feedback processes (Harvey and Kitson, 2016). In this study, the construct of context and its factors emerged as successful drivers that influenced the success of the EBP practice change. Factors included multidisciplinary collaboration, culture, evaluation capabilities, team engagement, technological and pharmacy resources, evaluation capabilities, and organizational and unit feedback. Results from this study suggest that contextual factors may have been more integral to the process of facilitation and successful implementation of an EBP in a NICU.

Facilitation is defined by the investigator as a strategy that enables or makes things easier for people in a collaborative learning environment. A facilitator is an appointed role in which one person enables or makes things easier for others in a collaborative learning environment (Harvey & Kitson, 2016). Findings from this study suggest that the external facilitators exhibited characteristics such as respect and credibility. Additional study findings demonstrate that the external facilitators functioned more along the task-oriented, “doing for others” continuum of facilitation rather than providing a holistic, “enabling others” approach. It is important to note that the continuum of facilitation is not static, and a primary element of facilitation is that external facilitators actively using facilitation activities and strategies to support and optimize implementation of an EBP in a NICU (Harvey & Kitson, 2016).

Based on the results of this study, Figure 9 is a reinterpretation of the i-PARIHS conceptual framework by the investigator. External facilitators had some effect on successful implementation of an innovation (components of the Antibiotic Stewardship Collaborative potentially best practice bundle) with recipients. However, there appears to be a direct effect of

contextual factors, both barriers and drivers, and the perceived importance of the innovation by the recipients that increased the success of implementation.

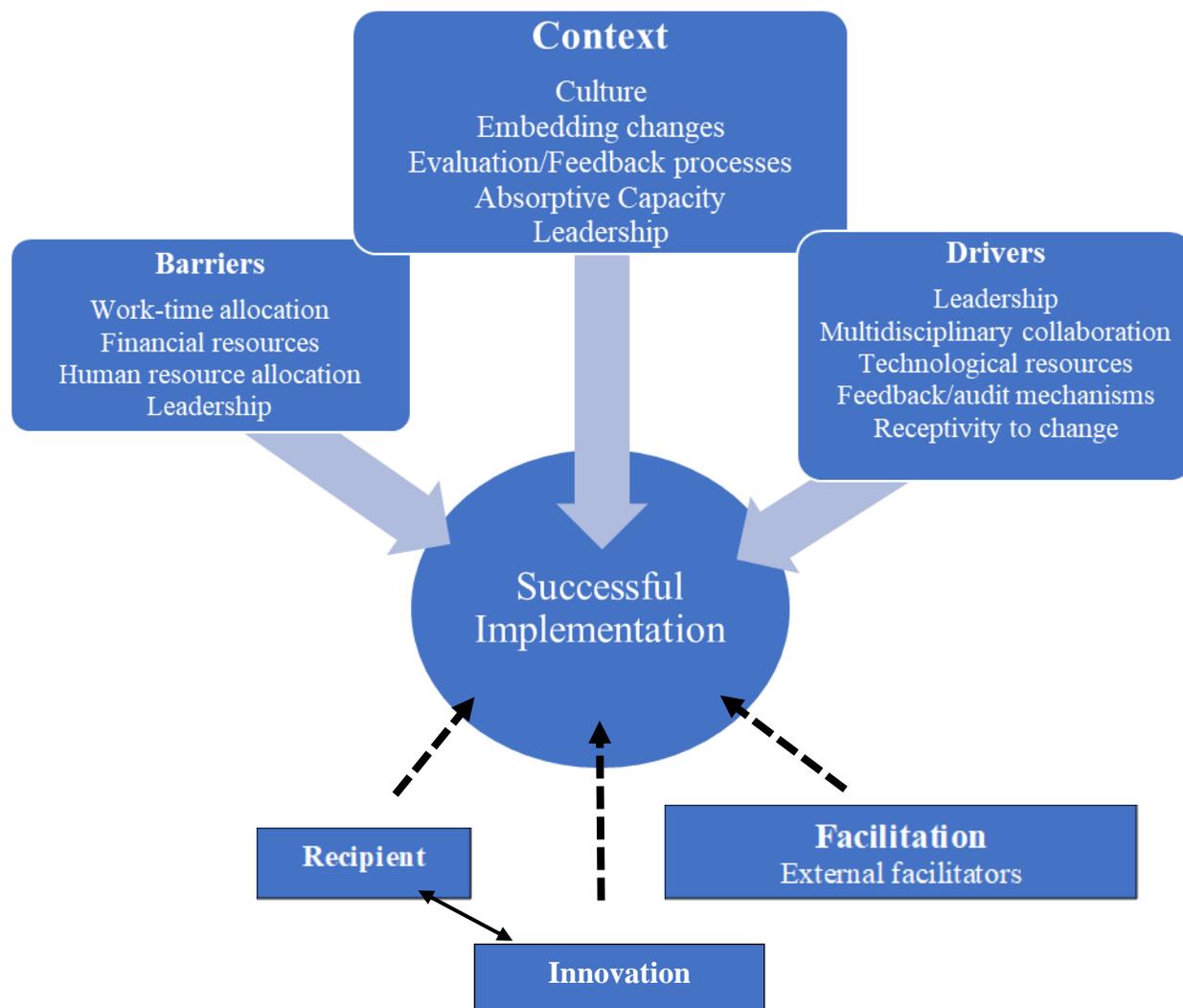


FIGURE 9. Reinterpretation of i-PARIHS framework based on study findings.

Limitations

A limitation of this study was the level of attrition in the broader AS facilitation collaborative that significantly affected the potential pool of recruitment and eventually the available sample. Despite the sample being small—there were only three NICUs with mainly

two neonatal healthcare clinicians from each site (a physician and nurse) that sustained engagement throughout the collaborative—the investigator found the data were rich, and was able to balance perspectives of the external facilitators with the facilitated NICU team members. While the sample size was small ($N = 8$), consistency of the data was achieved in this dissertation study. Other limitations were that CPQCC used physician to physician for the first line of contact, the resource expectation for participating was not clear, and the external facilitators did not reassign or re-group once they realized the “community of learning” was not developing because of attrition.

Implications for Practice

The results of this study have implications for understanding facilitation as an implementation strategy to increase the adoption and implementation of EBP into a NICU clinical setting. However, while there were noted benefits with facilitation and the use of external facilitators, this study provides insights into the importance of understanding the construct of context in the i-PARIHS framework during the implementation process as well. The findings from this study have implications for researchers and healthcare clinicians who have an interest in better comprehending various factors that may influence the adoption and integration of EBP into clinical settings. By sharing the findings from this study, other implementation science researchers who have an interest in the i-PARIHS conceptual framework may garner insights to the effectiveness of facilitation and external facilitators to enhance adoption and integration of EBP particularly in a NICU clinical setting. While the setting for this study is limited to the NICU, study findings may have additional implications for practical applications by healthcare clinicians and nursing and medical leadership. The study findings suggest clinicians, as well as

nursing and medical leadership teams, should understand their units' or departments' QI culture so that adoption and implementation of EBP may be more successful. Further, this study adds to the very limited body of knowledge about the strategy of facilitation and use of external facilitators broadly, but especially in a NICU setting.

Recommendations for Future Research

Healthcare is a dynamic, ever-changing environment and fraught with challenges to enhance the care delivery system and optimize patient care and quality outcomes. The literature supports that this can best be accomplished by implementing EBP. To reiterate, the knowledge to practice gap, which some have described as a “chasm,” takes on average 17 years for 14% of original research to be disseminated and implemented into clinical practice (Balas, 1998; Green, 2008). Of these 17 years, research that eventually makes it to textbooks, guidelines, or systematic reviews takes on average nine years to implement into clinical settings (Balas, 2000). Implementation science methods should be considered to increase adoption, implementation, and ultimately sustainability of EBP into a neonatal clinical setting and shorten that time. Three recommendations for future research emerged from study findings.

First, there was evidence to suggest the i-PARIHS construct of context was an essential factor that influenced adoption and implementation of components from the Antibiotic Stewardship Collaborative “potentially best-practices bundle.” Further exploration is needed to prospectively use the i-PARIHS framework during the process of implementing an EBP and tailor external facilitator strategies and activities through continuous assessment of the innovation in the NICU context with recipients. A critique of the i-PARIHS framework is that the framework is frequently used retrospectively to assess the success of implementation goals

and not prospectively. Prospective use of the i-PARIHS framework may enhance adoption and shorten the time to implement innovations.

Another recommendation for future research is to triangulate data by using a mixed-methods approach to prospectively explore the constructs of the i-PARIHS framework by implementing a program or innovation in a NICU setting. A quantitative approach to examining the constructs of the i-PARIHS framework can be made with the Organizational Readiness for Change Assessment (ORCA) instrument to complement qualitative research study findings. The ORCA instrument was developed by Helfrich and colleagues (2009) based on the i-PARIHS four constructs and the constructs' sub-elements. Results from a mixed-methods approach can add knowledge to the field of implementation science, specifically to the area of neonatal nursing and medicine. Study findings using a mixed-methods approach may also provide pragmatic approaches for neonatal healthcare clinicians to fully understand the barriers and drivers of implementing an EBP in their individual NICUs.

A final recommendation for future research is to better understand contributing factors that are barriers for neonatal healthcare clinicians as they embark on innovation in a NICU. The degree of self-attrition in this study brings up several questions of interest for researchers and clinicians. Were there barriers at the contextual level such as time or human resource allocation, or did the recipients not understand or value the benefit of the EBP? Is there a diversity of ways for external facilitators to make contact and create a relationship with NICU teams that may increase engagement? Also, how can external facilitators better evaluate context, recipient, and innovation to better sustain engagement? The expenditure of time, money, and human resources required to implement a program, intervention, or EBP would be better served if researchers and

neonatal healthcare clinicians had an improved understanding of factors that led to the significant level of self-attrition in this study. Results of a future research study exploring factors that led to self-attrition would also add to the body of implementation science knowledge.

Conclusion

The purpose of this qualitative descriptive study was to categorize, describe, and discover essential features of the strategy of facilitation in the context of implementing an EBP using perspectives elicited from neonatal healthcare clinicians and external facilitators. Literature has shown there are multifactorial variables that contribute to the success or failure of EBP implementation. The findings from this qualitative descriptive study provided an in-depth description of facilitation as an implementation strategy as experienced by neonatal healthcare clinicians and external facilitators during the Antibiotic Stewardship Collaborative.

Five major themes emerged from the data indicating that a multifaceted and collaborative approach increased the success of EBP implementation: 1) facilitated change management; 2) unit and organization receptivity; 3) evaluation strategies; 4) supportive culture; and 5) facilitator stewardship. This study provided insights into the importance of first, understanding and second, assessing the constructs of the i-PARIHS framework to increase implementation goals in a neonatal clinical setting. These insights add to the body of implementation science knowledge, especially in the field of neonatal nursing and medicine, as this has not been previously described in the literature.

External facilitators shared valuable insight into the challenges they faced with trying to initiate contact with neonatologists at the beginning of the Antibiotic Stewardship Collaborative, as well as sustaining communication and engagement throughout the Antibiotic Stewardship

Collaborative. The external facilitators expressed that if they were assigned to NICUs where they had an established relationship, and there was also nursing-to-nursing contact, their role as a facilitator might have been more effective. The external facilitators felt this lack of relationship between themselves and their assigned NICUs (physician-to-physician) further created scheduling challenges. Also, external facilitators described that their role, purpose, and skills and attributes primarily aligned with task-oriented or “doing for others,” rather than a holistic or “enabling others” approach on the continuum of facilitation.

Neonatal healthcare clinicians conveyed that local context factors that played a role in the success of implementing EBP primarily included multidisciplinary collaboration, the QI culture of the unit, pharmacy resources, evaluation capabilities, organizational and unit level audit and feedback, technological resources, and team engagement. Furthermore, barriers to the success of implementing EBP as described by neonatal healthcare clinicians primarily included human resource and work-time allocation, financial resources, and challenges of clinicians making changes based on evidence versus clinical experience.

This study was aimed at understanding and describing the strategy of facilitation in the context of implementing an evidence-based practice in a NICU using perspectives elicited from neonatal healthcare clinicians and external facilitators. The findings of this dissertation study supported many previous studies related to the implementation strategy of facilitation and the constructs of the i-PARIHS conceptual framework. Study findings also add to the field of implementation science research by suggesting that multiple factors should be considered at the beginning phases of implementing an EBP and ongoing evaluation by external facilitators of the implementation goals can improve the likelihood of its success.

APPENDIX A:
ADVISORY COUNCIL EMAIL

Hello,

My name is Jenny Quinn and I'm a PhD candidate at the University of Arizona. I am conducting a qualitative research study seeking to understand and describe the strategy of facilitation using perspectives elicited from neonatal healthcare clinicians and external facilitators who were involved with CPQCC's Antibiotic Stewardship Collaborative. I'm reaching out to you because of the relationship and rapport that you developed with participating neonatal healthcare clinicians during the collaborative and requesting your assistance in asking them to participate in my research study. Your involvement would entail emailing neonatal team members that were involved with CPQCC's Antibiotic Stewardship Collaborative and providing information pertaining to my research study. If you agree to this, please contact me via email, phone call, or text message by xx/xx/xxxx. Thank you for your consideration.

Sincerely,

Jenny Quinn, MSN, NNP-BC, MHA
The University of Arizona, Ph.D. Candidate
Perinatal Quality Improvement Panel member/CPQCC
Jennyq73@email.arizona.edu
707-971-0231

APPENDIX B:
RECRUITMENT EMAIL

Recruitment Email

*This email serves as an introduction to a research study conducted by Jenny Quinn, Ph.D. Candidate from the University of Arizona who is also a CPQCC Perinatal Quality Improvement Panel (PQIP) volunteer member. Ms. Quinn would like to perform **one** phone interview with neonatal healthcare clinicians and external facilitators who participated in the CPQCC Antibiotic Stewardship Collaborative.*

Hello,

My name is Jenny Quinn, I am a Ph.D. candidate at the University of Arizona and a volunteer member of the Perinatal Quality Improvement Panel (PQIP), which is a subcommittee in the California Perinatal Quality Care Collaborative (CPQCC). I am conducting a qualitative research study describing the experience of neonatal healthcare clinicians and external facilitators with the facilitated implementation of CPQCC's Antibiotic Stewardship Collaborative best-practice bundle. I would like to invite you to describe your experience during **one** in-depth phone interview. Information gathered from the interview will help with the design and implementation of future perinatal and neonatal CPQCC collaborative models. Your participation in this study is completely voluntary.

If you are interested, please contact me by email, phone call, or text message by xx/xx/xxxx so I may discuss further the study purpose and research participant expectations. I can also answer any questions you may have. Thank you for reading this email and considering participation in this research study.

Sincerely,

Jenny Quinn, MSN, NNP-BC, MHA
The University of Arizona, Ph.D. Candidate
Perinatal Quality Improvement Panel member/CPQCC
Jennyq73@email.arizona.edu
707-971-0231

APPENDIX C:
RECRUITMENT SCRIPT FOLLOWING NOTIFICATION FROM POTENTIAL
PARTICIPANTS

Recruitment script following notification from potential participants

Thank you for your interest in this qualitative research study. I have two interests in this research study. My first interest is to describe how the process of facilitation affects implementation of an evidence-based practice change. My second interest is to describe the external facilitator role from your point of view and experience. Information gathered from the interview will help in the design and implementation of future perinatal and neonatal collaborative models.

I would like to conduct one in-depth interview by phone. The interview will be recorded using the cell phone app Call Recorder; transcribed with Landmark Associates Inc., a web-based transcription and translation service; and stored on a password-protected laptop and a secured University of Arizona Box account. Following the interview, I will collect demographic data such as professional role, years of experience, and gender, for example. This information will be useful as part of the overall research results, so please consider this as you make your decision to participate.

Your participation is completely voluntary; privacy and confidentiality will be maintained throughout the research study. Risks for participating in this include breach of privacy and confidentiality. Confidentiality risks include potential peer identification based on quotes from the interview, if used in a publication. To minimize confidentiality risks, we offer you the opportunity to decline to publicly share information you have provided during our interview. Additionally, to maintain confidentiality, any personal identifying information will be removed unless otherwise stated by you.

Finally, in full transparency and disclosure, I am a member of the Perinatal Quality Improvement Panel (PQIP), which is a subcommittee of the California Perinatal Quality Care Collaborative (CPQCC). The research findings will be shared with PQIP to help the committee design future perinatal and neonatal collaborative models. Furthermore, research findings may be published and/or presented at nursing and medical conferences.

Thank you for your consideration of participating in this important study. Also, please let me know if you have any questions.

APPENDIX D:
DISCLOSURE FORM

Disclosure Form

The purpose of this study, *Exploring the Experience of Facilitation with Implementing Evidence-Based Practice in a Neonatal Intensive Care Unit*, is to describe the external facilitator role in assisting in the implementation of an evidence-based practice change in a neonatal intensive care unit.

If you choose to take part in this study, you will be asked to voluntarily participate in a phone or in-person interview. It will take approximately 30-60 minutes to complete the interview. Individual risks for study participation are low, however, mechanisms to minimize risk include securing a time for the phone interview that ensures privacy for the research participant to speak freely and openly; recorded phone interviews will be deleted once confirmed the transcription matches the recording; and transcriptions, data, and data analysis documents will be secured on a password-protected laptop and a University of Arizona Box account. Additionally, a confidentiality concern in this research study is the potential use of quotes in the study write-up. The public may not be able to identify the participant; however, peers or other study participants may be able to glean the identity of the participant based on quotes included in the study write-up. Prior to using a quote by a study participant in the study write-up, permission will be obtained for use. You will receive no immediate benefit from your participation. Benefits of study results will assist California Perinatal Quality Care Collaborative (CPQCC) in developing future neonatal collaboratives.

If you choose to participate in the study, participation is voluntary. You may withdraw at any time from the study. In addition, you may skip any question you choose not to answer. An Institutional Review Board responsible for human subjects' research at The University of

Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research. For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program online at <http://rgw.arizona.edu/compliance/human-subjects-protection-program>.

For questions, concerns, or complaints about the study, you may call:

Jenny Quinn, Ph.D. Candidate, MSN, NNP-BC, MHA
Jennyq73@email.arizona.edu (707) 971-0231

By participating in this study, you agree to have your responses used for research purposes.

APPENDIX E:
LETTER OF SUPPORT

Letter of Support

To the University of Arizona IRB:

I am the Chief Medical Officer of the California Perinatal Quality Care Collaborative (CPQCC), which is a data-driven quality improvement organization consisting of 138-member neonatal intensive care units. The data center and organizational infrastructure of CPQCC is based at the Stanford School of Medicine, where I serve as a faculty member.

I am familiar with Jenny Quinn's research project entitled Exploring the Experience of Facilitation with Implementing Evidence-Based Practice in a Neonatal Intensive Care Unit. I understand CPQCC's involvement to be allowing facilitators and participants of CPQCC's NICU QI 3.0 Model to be interviewed for this study.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research study is strictly voluntary and provides confidentiality of research data, as described in the protocol.

Therefore, as a representative of CPQCC, I agree that Jenny Quinn's research project may be conducted and ensure that we will support her efforts.

Sincerely,



Henry C. Lee, MD
Associate Professor of Pediatrics
Stanford School of Medicine
Chief Medical Officer, CPQCC

APPENDIX D:
THE UNIVERSITY OF ARIZONA INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL
LETTER



Human Subjects
Protection Program

1618 E. Helen St.
P.O.Box 245137
Tucson, AZ 85724-5137
Tel: (520) 626-6721
<http://rgw.arizona.edu/compliance/home>

Date: January 19, 2018
Principal Investigator: Jenny Quinn
Protocol Number: 1801179462
Protocol Title: Exploring the Experience of Facilitation with Implementing Evidence-Based Practice in a Neonatal Intensive Care Unit

Determination: Approved
Expiration Date: January 18, 2023

Documents Reviewed Concurrently:

Data Collection Tools: *DEMOGRAPHIC QUESTIONNAIRE.v12.17.docx*
Data Collection Tools: *Interview Protocol for Facilitators.v12.17.docx*
Data Collection Tools: *Interview Protocol for Participants.12.17.docx*
HSPP Forms/Correspondence: *Advisor Signature.pdf*
HSPP Forms/Correspondence: *appendix_waiver_v2018..JennyQuinn.1.9.18.pdf*
HSPP Forms/Correspondence: *application_v2018_0..JennyQuinn.1.9.18.pdf*
HSPP Forms/Correspondence: *Confirmation email.pdf*
HSPP Forms/Correspondence: *f107_v2016-07_0.docx*
HSPP Forms/Correspondence: *References.Form9.docx*
Informed Consent/PHI Forms: *Disclosure Form.1.9.2018.docx*
Informed Consent/PHI Forms: *Disclosure Form.1.9.2018.pdf*
Other Approvals and Authorizations: *CPQCC Support Letter.docx*
Recruitment Material: *Advisory Council email.v12.17.docx*
Recruitment Material: *recruitment email.v12.17.docx*
Recruitment Material: *Recruitment script following notification from potential participants.docx*

Regulatory Determinations:

- The project is not federally funded or supported and has been deemed to be no more than minimal risk.
- The project listed is required to update the HSPP on the status of the research in 5 years. A reminder notice will be sent 60 days prior to the expiration noted to submit a 'Project Update' form.

This project has been reviewed and approved by an IRB Chair or designee.

- The University of Arizona maintains a Federalwide Assurance with the Office for Human Research Protections (FWA #00004218).
- All research procedures should be conducted according to the approved protocol and the policies and guidance of the IRB.
- The Principal Investigator should notify the IRB immediately of any proposed changes that affect the protocol and report any unanticipated problems involving risks to participants or

APPENDIX G:
DEMOGRAPHIC QUESTIONNAIRE

DEMOGRAPHIC QUESTIONNAIRE

1. What is your gender?
 - a. Female
 - b. Male

2. What is your race?
 - a. American Indian or Alaska Native
 - b. Asian
 - c. Black or African American
 - d. Hispanic or Latino
 - e. Native Hawaiian or Other Pacific Islander
 - f. White

3. What is your age?

4. What is your profession?
 - a. Physician
 - b. Nurse practitioner
 - c. Nurse
 - d. Manager
 - e. Data collection specialist
 - f. Other

5. How many years have you been practicing in your profession?

6. What is your highest level of education?
 - a. Associate

- b. Bachelor
 - c. Master
 - d. Medical School
7. What level is your NICU?
- a. I
 - b. II
 - c. III
 - d. IV
8. Is your NICU a community, intermediate, or regional NICU?
- a. Community
 - b. Intermediate
 - c. Regional
 - d. I don't know
9. Are you a Magnet organization?
- a. Yes
 - b. No
 - c. I don't know

APPENDIX H:
INTERVIEW PROTOCOL FOR PARTICIPANTS

Interview Protocol for Participants

Time of Interview:

Date of Interview:

Interviewer:

Interviewee:

1. Have you participated in other CPQCC QI collaboratives, such as the Length of Separation Collaborative, Delivery Room Collaborative, Antibiotic Stewardship Collaborative? If so, how many?
2. Have you participated in other CPQCC QI Projects, such as NICU QI 1.0 or 2.0? If so, how many?
3. Did you receive protected time at work to participate in the antibiotic stewardship collaborative?
4. What was the purpose of the evidence-based practice change?
5. What were your personal feelings about the need for the evidence-based practice change?
6. Who were the key players (roles) in this evidence-based practice change?
7. What were your interactions with the facilitator and were there any specific challenges you experienced? Can you provide an example?
8. When meeting with the CPQCC external facilitator, can you describe the format used?
For example, phone call only.
 - a. Can you describe how many people participated in these meetings?
 - b. Can you describe the group dynamics during these meetings?

9. Can you provide some examples when the facilitator provided support to you in the evidence-based practice change?
10. What were some of the challenges or barriers that you experienced over time during the process of implementing the evidence-based practice change?
11. What were some of the successes that you experienced over time during the process of the evidence-based practice change?
12. Describe your experience with the facilitator over time during the process of implementing the evidence-based practice change.
13. Can you describe your rapport with the facilitator?
14. Can you provide an example of a time when the facilitator demonstrated respect, responsiveness, and/or flexibility with you during the process of the practice change?
15. Can you describe how your organization supported you to participate with the practice change?
16. Is there anything else you would like to share with me?

Note: Adapted from Harvey & Kitson (2016).

APPENDIX I:
INTERVIEW PROTOCOL FOR FACILITATORS

Interview Protocol for Facilitators

Time of Interview:

Date of Interview:

Interviewer:

Interviewee:

1. What was the purpose of the evidence-based practice change?
2. What were your personal feelings about the need for the evidence-based practice?
3. What was your role as the facilitator?
 - a. If I define maximum support as providing comprehensive or extensive input or direction, can you describe an example of providing maximum support? What did you do and how did it work?
 - b. If I define minimum support as providing limited input or direction, can you describe an example of providing minimum support? What did you do and how did it work?
4. What were your interactions like with group participants?
 - a. What is an example of a time you had a typical interaction?
 - b. What is an example of a time you had an atypical interaction?
 - c. Can you describe if there were any perceived role differences amongst the group participants that may have affected the group dynamic?
5. Describe your experience as the facilitator over time during the process of the evidence-based practice change.

6. What were some of the challenges or barriers that you experienced over time during the process of implementing the evidence-based practice change?
7. What were some of the successes that you experienced over time during the process of implementing the evidence-based practice change?
8. During the process of implementing the evidence-based practice change, do you feel you engaged more in a role such as providing practical guidelines and task-driven activities or a role such as mentoring and empowering the change team?
 - a. Can you give me an example of when you provided practical guideline support or assistance with a task-driven activity, if applicable?
 - b. Can you give me an example of when you provided mentoring or assisted in empowering the change team?
9. Can you describe your rapport with the change team?
10. Can you provide an example of a time when you demonstrated respect, responsiveness, and/or flexibility during the process of the practice change?
11. Can you describe your experiences with facilitation and being a facilitator before to this collaborative?
12. Is there anything else you would like to share with me?

Note: Adapted from Harvey & Kitson (2016).

APPENDIX J:
DATA ANALYSIS CODES

Data Analysis Codes

Categories (Sub-themes) based on Dogherty and colleagues (2010) taxonomy of facilitation strategies and facilitator role synopsis: **1)** planning for change; **2)** leading and managing change; **3)** monitoring progress and ongoing implementation; **4)** evaluating change

Labels for Category 1

- Creating an action plan
- Identifying EBP barriers
- Sharing decision making

Definition

Assisting with development of an action plan
Identify and determine solutions to address potential EBP barriers
Goal-setting and consensus-building

Labels for Category 2

- Providing resources for change
- Delegating responsibilities
- Adapting evidence
- Building teams
- Encouraging team participation
- Empowering
- Giving practical assistance

Providing resources and tools for change
Establishing and allocating roles/delegating responsibilities
Assisting with adapting evidence to the local context
Relationship building; encouraging effective teamwork
Encouraging/ensuring adequate participation
Empowering group members
Leading meetings; gathering and assembling reports; general planning

Labels for Category

- Solving problems
- Mentoring
- Maintaining momentum
- Providing support
- Communicating well

Addressing specific issues; making changes to the plan
Mentoring and role-modeling EBP
Maintaining momentum and enthusiasm throughout QI projects
Offer ongoing support/constructive feedback, providing advice
Providing regular communication (emails/phone); keeping group members informed

Labels for Category 4

- Assessing change
- Linking evidence to outcomes
- Acknowledging success achievements

Performing/assisting with evaluation
Linking evidence implementation to patient outcomes and improved care processes
Acknowledging, recognizing, and celebrating

Label

- Other

REFERENCES

- Addie, S., Olson, S., & Beachy, S. H. (2016). *Applying an implementation science approach to genomic medicine: Workshop summary*. Washington, DC: The National Academies Press.
- American Academy of Pediatrics, Committee on Fetus and Newborn. (2012). Levels of Neonatal Care. *Pediatrics*, *130*(3), 587-597. doi:10.1542/peds.2012-1999.
- Armstrong, C. D., Taljaard, M., Hogg, W., Mark, A. E., & Liddy, C. (2016). Practice facilitation for improving cardiovascular care: Secondary evaluation of a stepped wedge cluster randomized controlled trial using population-based administrative data. *Trials*, *17*. doi:10.1186/s13063-016-1547-2.
- Atlas.ti. (2017). Atlas.ti qualitative data analysis. Retrieved from <http://atlasti.com/>
- Balas, E. A. (1998). From appropriate care to evidence-based medicine. *Pediatric Annals*, *27*(9), 581-584.
- Balas, E. A. & Boren, S. A. (2000). Managing clinical knowledge for health care improvement. *Yearbook of Medical Informatics 2000: Patient-Centered Systems*.
- Batalden, P. B. & Davidoff, F. (2007). What is “quality improvement” and how can it transform healthcare? *BMJ Quality & Safety*, *16*, 2-3.
- Bareil, C., Duhamel, F., Lalonde, L., Goudreau, J., Hudon, E., Lussier, M. T., ... Lalonde, G. (2015). Facilitating implementation of interprofessional collaborative practices into primary care: A trilogy of driving forces. *Journal of Healthcare Management*, *60*(4), 287-300.
- Baskerville, N. B., Liddy, C., & Hogg, W. (2012). Systematic review and meta-analysis of practice facilitation within primary care settings. *Ann Fam Med*, *(10)*, 63-74.
- Bender, B., Dickinson, P., Rankin, A., Wamboldt, F., Zittleman, L., & Westfall, J. (2011). The Colorado asthma toolkit program: A practice coaching intervention from the high plains research network. *Journal of the American Board of Family Medicine*, *24*(3), 240-248. doi:10.3122/jabfm.2011.03.100171.
- Bender, M., Connelly, C. D., & Brown, C. (2013). Interdisciplinary collaboration: The role of the clinical nurse leader. *Journal of Nursing Management*, *21*(1), 165-174.
- Berta, W., Cranley, L., Dearing, J. W., Doherty, E. J., Squires, J. E., & Estabrooks, C. A. (2015). Why (we think) facilitation works: Insights from organizational learning theory. *Implementation Science*, *10*(1), 1-13. doi:10.1186/s13012-015-0323-0.

- Bertram, R., Blase, K., Shern, D., Shea, P., and Fixsen, D. (2011). *Policy research brief: Implementation opportunities and challenges for prevention and promotion initiatives*. Alexandria, VA: National Association of State Mental Health Program Directors (NASMHPD).
- Bidassie, B., Williams, L. S., Woodward-Hagg, H., Matthias, M. S., & Damush, T. M. (2015). Key components of external facilitation in an acute stroke quality improvement collaborative in the Veterans Health Administration. *Implementation Science, 10*. doi:10.1186/s13012-015-0252-y.
- Bokhour, B. G., Saifu, H., Goetz, M. B., Fix, G. M., Burgess, J., Fletcher, M. D., ... Asch, S. M. (2015). The role of evidence and context for implementing a multimodal intervention to increase HIV testing. *Implementation Science, 10*(1), 22-22. doi:10.1186/s13012-015-0214-4.
- Brown, D. & McCormack, B. (2016). Exploring psychological safety as a component of facilitation within the promoting action on research implementation in health services framework. *Journal of Clinical Nursing, 25*(19/20), 2921-2932. doi:10.1111/jocn.13348.
- Brown, K., Lindenberger, J., & Bryant, C. (2008). Using pretesting to ensure your messages and materials are on strategy. *Health Promotion Practice, 9*(2), 116-122.
- Burrows, D. E. (1997). Facilitation: A concept analysis. *Journal of Advanced Nursing, 25*(2), 396-404.
- California Department of Health Care Services. (2018). California Children's Services. Retrieved from www.dhcs.ca.gov/services/ccs/Pages/default.aspx.
- California Perinatal Quality Care Collaborative. (n.d.). Retrieved from <https://www.cpqcc.org/about-us/mission-vision>.
- Call Recorder. (2016). Call Team [Mobile application software]. Retrieved from <http://callapps.studio/>.
- Corbin, J. & Strauss, A. (2015). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W. & Poth, C. N. (2017). Philosophical assumptions and interpretive frameworks. In *Qualitative inquiry and research design: Choosing among five approaches* (4th Ed.). Thousand Oaks, CA: Sage Publications.
- Curry, L. A., Brault, M. A., Linnander, E. L., McNatt, Z., Brewster, A. L., Cherlin, E., ... & Bradley, E. H. (2017). Influencing organisational culture to improve hospital performance in care of patients with acute myocardial infarction: A mixed-methods intervention study. *BMJ Qual Saf, bmjqs-2017*.

- David Johnson, J. (2012). The role of human agents in facilitating clinical and translational science. *Clinical and Translational Science*, 5(4), 356-361.
- Dearing, J. & Kee, K. (2012). Historical roots of dissemination and implementation science. In R. Brownson, G. Colditz, & E. Proctor (Eds). *Dissemination and implementation research in health: Translating science to practice* (pp. 55 -71). New York, NY: Oxford University Press.
- der Zijpp, T. J., Niessen, T., Eldh, A. C., Hawkes, C., McMullan, C., Mockford, C., ... Seers, K. (2016). A bridge over turbulent waters: Illustrating the interaction between managerial leaders and facilitators when implementing research evidence. *Worldviews on Evidence-Based Nursing*, 13(1), 25-31. doi:10.1111/wvn.12138.
- Dogherty, E. J., Harrison, M. B., & Graham, I. D. (2010). Facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning. *Worldviews on Evidence-Based Nursing*, 7(2), 76-89. doi:10.1111/j.1741-6787.2010.00186.x.
- Dogherty, E. J., Harrison, M. B., Baker, C., & Graham, I. D. (2012). Following a natural experiment of guideline adaptation and early implementation: A mixed-methods study of facilitation. *Implementation Science*, 7(1), 9.
- Dogherty, E. J., Harrison, M. B., Graham, I. D., Vandyk, A. D., & Keeping-Burke, L. (2013). Turning knowledge into action at the point-of-care: The collective experience of nurses facilitating the implementation of evidence-based practice. *Worldviews on Evidence-Based Nursing*, 10(3), 129-139. doi:10.1111/wvn.12009.
- Dogherty, E. J., Harrison, M., Graham, I., & Keeping-Burke, L. (2014). Examining the use of facilitation within guideline dissemination and implementation studies in nursing. *Int J Evid Based Healthc*, 12(2), 105-127. doi:10.1097/xeb.0000000000000008.
- Elnitsky, C. A., Powell-Cope, G., Besterman-Dahan, K. L., Rugs, D., & Ullrich, P. M. (2015). Implementation of safe patient handling in the U.S. Veterans health system: A qualitative study of internal facilitators' perceptions. *Worldviews on Evidence-Based Nursing*, 12(4), 208-216. doi:10.1111/wvn.12098.
- Eriksson, L., Huy, T. Q., Duc, D. M., Ekholm Selling, K., Hoa, D. P., Thuy, N. T., ... Wallin, L. (2016). Process evaluation of a knowledge translation intervention using facilitation of local stakeholder groups to improve neonatal survival in the Quang Ninh province, Vietnam. *Trials*, 17, 23-23. doi:10.1186/s13063-015-1141-z.
- Fawcett, J. (1993). From a plethora of paradigms to parsimony in worldviews. *Nursing Science Quarterly*, 6(2), 56-58.

- Fawcett, J. (2005). The structure of contemporary nursing knowledge. In *Contemporary nursing knowledge: Analysis and evaluation of nursing models and theories* (2nd ed., pp. 1-48). Philadelphia, PA: F. A. Davis Co.
- Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231).
- Fixsen, D. L., Blase, K. A., Naoom, S. F., Van Dyke, M., & Wallace, F. (2009). Implementation: The missing link between research and practice. *NIRN implementation brief, 1*.
- Francis, J. J., Johnston, M., Robertson, C., Glidewell, L., Entwistle, V., Eccles, M. P., & Grimshaw, J. M. (2010). What is an adequate sample size? Operationalising data saturation for theory-based interview studies. *Psychology and Health, 25*(10), 1229-1245.
- Gentles, S. J., Charles, C., Ploeg, J., & McKibbin, K. (2015). Sampling in qualitative research: Insights from an overview of the methods literature. *The Qualitative Report, 20*(11), 1772-1789. Retrieved from <http://nsuworks.nova.edu/tqr/vol20/iss11/5>.
- Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal, 204*(6), 291.
- Gold, R., Hollombe, C., Bunce, A., Nelson, C., Davis, J. V., Cowburn, S., ... Smith, D. (2015). Study protocol for “study of practices enabling implementation and adaptation in the safety net (SPREAD-NET)”: A pragmatic trial comparing implementation strategies. *Implementation Science, 10*. doi:10.1186/s13012-015-0333-y.
- Green, L. W. (2008). Making research relevant: If it is an evidence-based practice, where's the practice-based evidence? *Family Practice 25*(suppl_1), i20-i24.
- Harvey, G., Loftus-Hills, A., Rycroft-Malone, J., Titchen, A., Kitson, A., McCormack, B., & Seers, K. (2002). Getting evidence into practice: The role and function of facilitation. *Journal of Advanced Nursing, 37*(6), 577-588. doi:10.1046/j.1365-2648.2002.02126.x.
- Harvey, G. & Kitson, A. (2015). *Implementing evidence-based practice in healthcare: A facilitation guide*. Routledge.
- Harvey, G. & Kitson, A. (2016). PARIHS revisited: From heuristic to integrated framework for the successful implementation of knowledge into practice. *Implementation Science, 11*(1), 33.

- Helfrich, C. D., Damschroder, L. J., Hagedorn, H. J., Daggett, G. S., Sahay, A., Ritchie, M., ... Stetler, C. B. (2010). A critical synthesis of literature on the promoting action on research implementation in health services (PARIHS) framework. *Implementation Science*, 5. doi:10.1186/1748-5908-5-82.
- Hill, J. N., Guihan, M., Hogan, T. P., Smith, B. M., LaVela, S. L., Weaver, F. M., ... Evans, C. T. (2017). Use of the PARIHS framework for retrospective and prospective implementation evaluations. *Worldviews on Evidence-Based Nursing*, 14(2), 99-107. doi:10.1111/wvn.12211.
- Houle, S. K. D., Charrois, T. L., Faruquee, C. F., Tsuyuki, R. T., & Rosenthal, M. M. (2017). A randomized controlled study of practice facilitation to improve the provision of medication management services in Alberta community pharmacies. *Research in Social & Administrative Pharmacy*, 13(2), 339-348. doi:10.1016/j.sapharm.2016.02.013.
- Howard, J., Shaw, E. K., Felsen, C. B., & Crabtree, B. F. (2012). Physicians as inclusive leaders: insights from a participatory quality improvement intervention. *Quality Management in Healthcare*, 21(3), 135-145.
- Hughes, R. G. (2008). Tools and strategies for quality improvement and patient safety. In R. G. Hughes (Ed.), *Patient safety and quality: An evidence-based handbook for nurses* (Vol. 3, pp. 1146-1169). Rockville, MD: Agency for Healthcare Research and Quality.
- Hung, D. & Leidig, R. C. (2015). Implementing a transitional care program to reduce hospital readmissions among older adults. *J Nurs Care Qual*, 30(2), 121-129. doi:10.1097/ncq.0000000000000091.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.
- Institute of Medicine. (2009). *Roundtable on evidence-based medicine. Leadership commitments to improve value in healthcare: Finding common ground: Workshop summary*. Washington, DC: National Academies Press. Retrieved from: <https://www.ncbi.nlm.nih.gov/books/NBK52847/>
- Institute of Medicine. (2010). *The healthcare imperative: Lowering costs and improving outcomes: Workshop series summary*. Washington, DC: The National Academies Press.
- Joint Commission. (2016). Retrieved from https://www.jointcommission.org/assets/1/6/New_Antimicrobial_Stewardship_Standard.pdf
- Kahn, W. A. (1990). Psychological conditions of personal engagement and disengagement at work. *Academy of Management Journal*, 33(4), 692-724.

- Kaiser, K. (2009). Protecting respondent confidentiality in qualitative research. *Qualitative Health Research, 19*(11), 1632-1641. <http://doi.org/10.1177/1049732309350879>
- Kilbourne, A. M., Goodrich, D. E., Lai, Z., Almirall, D., Nord, K. M., Bowersox, N.W., et al. (2015). Reengaging veterans with serious mental illness into care: Preliminary results from a national randomized trial. *Psychiatr Serv. 66*, 90-93.
- Kitson A., Harvey G., & McCormack, B. (1998). Enabling the implementation of evidence-based practice: A conceptual framework. *Quality in Health Care, 7*, 149-158.
- Kitson, A. L., Rycroft-Malone, J., Harvey, G., McCormack, B., Seers, K., & Titchen, A. (2008). Evaluating the successful implementation of evidence into practice using the PARiHS framework: Theoretical and practical challenges. *Implementation Science, 3*(1), 1.
- Landmark Associates, Inc. (2018). Retrieved from <https://www.thelai.com/>
- Lessard, S., Bareil, C., Lalonde, L., Duhamel, F., Hudon, E., Goudreau, J., & Lévesque, L. (2016). External facilitators and interprofessional facilitation teams: A qualitative study of their roles in supporting practice change. *Implementation Science, 11*(1), 97.
- Liddy, C., Hogg, W., Singh, J., Taljaard, M., Russell, G., Armstrong, C. D., ... Deri Armstrong, C. (2015). A real-world stepped wedge cluster randomized trial of practice facilitation to improve cardiovascular care. *Implementation Science, 10*, 1-11. doi:10.1186/s13012-015-0341-y.
- Lindsay, J. A., Kauth, M. R., Hudson, S., Martin, L. A., Ramsey, D. J., Daily, L., & Rader, J. (2015). Implementation of video telehealth to improve access to evidence-based psychotherapy for posttraumatic stress disorder. *Telemedicine and E-Health, 21*(6), 467-472. doi:10.1089/tmj.2014.0114.
- Lincoln, Y. & Guba, E. (1985). Establishing trustworthiness. In *Naturalistic Inquiry*, pp. 289-331. Newbury Park, CA: Sage Publications.
- McFadyen, J. & Rankin, J. (2016). The role of gatekeepers in research: Learning from reflexivity and reflection. *GSTF Journal of Nursing and Health Care (JNHC), 4*(1).
- McGinty, J. & Anderson, G. (2008). Predictors of physician compliance with American Heart Association guidelines for acute myocardial infarction. *Critical Care Nursing Quarterly, 31*(2), 161-172.
- McKillop, A., Crisp, J., & Walsh, K. (2012). Barriers and enablers to implementation of a New Zealand-wide guideline for assessment and management of cardiovascular risk in primary health care: A template analysis. *Worldviews on Evidence-Based Nursing, 9*(3), 159-171. doi:10.1111/j.1741-6787.2011.00233.x

- Melnyk, B. M. (2012). Achieving a high-reliability organization through implementation of the ARCC model for system wide sustainability of evidence-based practice. *Nursing Administration Quarterly*, 36(2), 127-135. doi:10.1097/naq.0b013e318249fb6a
- Melnyk, B. M., Fineout-Overholt, E., Gallagher-Ford, L., & Kaplan, L. (2012). The state of evidence-based practice in US nurses: Critical implications for nurse leaders and educators. *Journal of Nursing Administration*, 42(9), 410-417.
- Melnyk, B. M., Gallagher-Ford, L., Thomas, B. K., Troseth, M., Wyngarden, K., & Szalacha, L. (2016). A study of chief nurse executives indicates low prioritization of evidence-based practice and shortcomings in hospital performance metrics across the United States. *Worldviews on Evidence-Based Nursing*, 13(1), 6-14.
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis*. Thousand Oaks, CA: Sage Publications.
- Morse, J. M. (1994). Designing funded qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 220-235). Thousand Oaks, CA: Sage Publications.
- National Institute of Health (2017). *Implementation science and resources*. Retrieved from <https://www.fic.nih.gov/researchtopics/pages/implementationsscience.aspx>
- Nembhard, I. M. (2012). All teach, all learn, all improve? The role of interorganizational learning in quality improvement collaboratives. *Health Care Management Review*, 37(2), 154-164. <http://doi.org/10.1097/HMR.0b013e31822af831>
- Neergaard, M. A., Olesen, F., Andersen, R. S., & Sondergaard, J. (2009). Qualitative description—the poor cousin of health research? *BMC Medical Research Methodology*, 9(1), 52.
- Nilsen, P. (2015). Making sense of implementation theories, models and frameworks. *Implementation Science*, 10(1), 53.
- Nygårdh, A., Ahlström, G., & Wann-Hansson, C. (2016). Handling a challenging context: Experiences of facilitating evidence-based elderly care. *J Nurs Manag*, 24(2), 201-210. doi:10.1111/jonm.12300
- Patton, M. Q. (2002). *Qualitative evaluation and research methods* (3rd ed.). Newbury Park, CA: Sage Publications.
- Parchman, M. L., Noel, P. H., Culler, S. D., Lanham, H. J., Leykum, L. K., Romero, R. L., et al. (2013). A randomized trial of practice facilitation to improve the delivery of chronic illness care in primary care: Initial and sustained effects. *Implementation Science*, 8, 93.

- Persson, L. Å., Nga, N. T., Målqvist, M., Thi Phuong Hoa, D., Eriksson, L., Wallin, L., ... Ewald, U. (2013). Effect of facilitation of local maternal-and-newborn stakeholder groups on neonatal mortality: Cluster-randomized controlled trial. *PLoS Medicine*, *10*(5), e1001445-e1001445. doi:10.1371/journal.pmed.1001445
- Powrie, S. L., Danly, D., Corbett, C. F., Purath, J., & Dupler, A. (2014). Using implementation science to facilitate evidence-based practice changes to promote optimal outcomes for orthopaedic patients. *Orthopaedic Nursing*, *33*(2), 109-114. doi:10.1097/nor.0000000000000036
- Pravikoff, D. S., Pierce, S. T., & Tanner, A. (2005). Evidence-based practice readiness study supported by academy nursing informatics expert panel. *Nursing Outlook*, *53*(1), 49-50.
- Reed, P. G. (2011). The spiral path of nursing knowledge. In P. G. Reed & N. B. Shearer (Eds.). *Nursing knowledge and theory innovation: Advancing the science of practice* (pp. 1-36). New York, NY: Springer Publishing Company.
- Ritchie, M. J., Parker, L. E., Edlund, C. N., & Kirchner, J. E. (2017). Using implementation facilitation to foster clinical practice quality and adherence to evidence in challenged settings: A qualitative study. *BMC Health Services Research*, *17*. doi:10.1186/s12913-017-2217-0.
- Ritchie, M.J., Dollar, K.M., Miller, C.J., Oliver, K.A., Smith, J.L., Lindsay, J.A., & Kirchner, J.E. (2017). Using implementation facilitation to improve care in the Veterans Health Administration (Version 2). Veterans Health Administration, Quality Enhancement Research Initiative (QUERI) for Team-Based Behavioral Health. Retrieved from <https://www.queri.research.va.gov/tools/implementation/Facilitation-Manual.pdf>
- Ritchie, M. J., Kirchner, J. E., Parker, L. E., Curran, G. M., Fortney, J. C., Pitcock, J. A., ... & Kilbourne, A. M. (2015). Evaluation of an implementation facilitation strategy for settings that experience significant implementation barriers. *Implementation Science*, *10* (1).
- Rogers, E. M. (2003). *The diffusion of innovation* (5th ed.). Free Press, Simon & Schuster.
- Rycroft-Malone, J., Seers, K., Chandler, J., Hawkes, C., Crichton, N., Allen, C., et al. (2013). The role of evidence, context, and facilitation in an implementation trial: Implications for the development of the PARIHS framework. *Implementation Science*, *8*(1), 28.
- Saldana, J. (2016). *The coding manual for qualitative research*. Thousand Oaks, CA: Sage Publications.
- Sandelowski, M. (2000). Focus on research methods-whatever happened to qualitative description? *Research in Nursing & Health*, *23*(4), 334-340.

- Schulman, J., Dimand, R., Lee, H., Duenas, G., Bennett, M., & Gould, J. (2015). Neonatal intensive care unit antibiotic use. *Pediatrics*, *135*(5), 826-833. doi:10.1542/peds.2014-3409
- Stetler, C. B., Legro, M. W., Rycroft-Malone, J., Bowman, C., Curran, G., Guihan, M., ... Wallace, C. M. (2006). Role of “external facilitation” in implementation of research findings: A qualitative evaluation of facilitation experiences in the Veterans Health Administration. *Implementation Science*, *1*(1), 23.
- Stetler, C. B., Damschroder, L. J., Helfrich, C. D., & Hagedorn, H. J. (2011). A guide for applying a revised version of the PARIHS framework for implementation. *Implementation Science*, *6*(99). doi:10.1186/1748-5908-6-99
- Swensen, S. J., Dilling, J. A., Harper Jr, C. M., & Noseworthy, J. H. (2012). The Mayo Clinic value creation system. *American Journal of Medical Quality*, *27*(1), 58-65.
- Swensen, S. J., Dilling, J. A., Mc Carty, P. M., Bolton, J. W., & Harper Jr, C. M. (2013). The business case for health-care quality improvement. *Journal of Patient Safety*, *9*(1), 44-52.
- Tabak, R. G., Khoong, E. C., Chambers, D. A., & Brownson, R. C. (2012). Bridging research and practice: Models for dissemination and implementation research. *American Journal of Preventive Medicine*, *43*(3), 337-350.
- Thorne, S. (2008). *Interpretive description*. Walnut Creek, CA: Left Coast Press.
- Trochim, W., Donnelly, J. P., & Arora, K. (2016). *Research methods: The essential knowledge base*. Nelson Education.
- U.S. Department of Health and Human Services (2011). *Quality improvement*. Retrieved from <https://www.hrsa.gov/quality/toolbox/508pdfs/qualityimprovement.pdf>
- U.S. Department of Health and Human Services (2016). National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. The Belmont Report. Ethical Principles and Guidelines for the Protection of Human Subjects of Research. Retrieved from <https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/>
- Van de Ven, A. H. & Johnson, P. E. (2006). Knowledge for theory and practice. *The Academy of Management Review*, *31*, 802-821.
- Walker, L. O. & Avant, K. C. (2011). *Strategies for theory construction in nursing* (5th ed.). Upper Saddle River, NJ: Pearson.

- Ward, M. M., Baloh, J., Zhu, X., & Stewart, G. L. (2017). Promoting action on research implementation in health services framework applied to TeamSTEPPS implementation in small rural hospitals. *Health Care Management Review, 42*(1), 2-13. doi:10.1097/hmr.0000000000000086
- Waxmonsky, J., Kilbourne, A. M., Goodrich, D. E., Nord, K. M., Lai, Z., Laird, C., ... Bauer, M. S. (2014). Enhanced fidelity to treatment for bipolar disorder: Results from a randomized controlled implementation trial. *Psychiatric Services, 65*(1), 81-90. doi:10.1176/appi.ps.201300039
- Wuest, J. (2012). Grounded theory: The method. In P. Munhall (Ed.). *Nursing research: A qualitative perspective* (pp. 225-256). Sudbury, MA: Jones & Bartlett Learning.
- Wyer, P., Stojanovic, Z., Shaffer, J. A., Placencia, M., Klink, K., Fosina, M. J., ... Graham, I. D. (2016). Combining training in knowledge translation with quality improvement reduced 30-day heart failure readmissions in a community hospital: A case study. *J Eval Clin Pract, 22*(2), 171-179. doi:10.1111/jep.12450