A FORMATIVE PROGRAM EVALUATION OF THE CRUCIAL

CONVERSATIONS™ PROGRAM

by

David R. Trinidad

A Practice Inquiry Project Submitted to the Faculty of the

COLLEGE OF NURSING

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF NURSING PRACTICE

In the Graduate College

THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the Practice Inquiry Project Committee, we certify that we have read the practice inquiry project prepared by David R. Trinidad entitled "A Formative Program Evaluation of the Crucial Conversations™ Program" and recommend that it be accepted as fulfilling the practice inquiry project requirement for the Degree of Doctor of Nursing Practice.

_____ Date: <u>November 22, 2013</u>
Cathy L. Michaels, PhD, RN, FAAN
Clinical Associate Professor

_____ Date: <u>November 22, 2013</u>
Barbara B. Brewer, PhD, RN
Clinical Associate Professor

_____ Date: <u>November 22, 2013</u>
Ted S. Rigney, PhD, ACNP-BC, FAANP
Clinical Associate Professor

Final approval and acceptance of this practice inquiry project is contingent upon the candidate's submission of the final copies of the practice inquiry project to the Graduate College.

I hereby certify that I have read this practice inquiry project prepared under my direction and recommend that it be accepted as fulfilling the practice inquiry project requirement.

_____ Date: <u>November 22, 2013</u>
Practice Inquiry Project Director: Cathy L. Michaels, PhD, RN, FAAN
Clinical Associate Professor

STATEMENT BY AUTHOR

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SIGNED: __David R. Trinidad_____

ACKNOWLEDGMENTS

I am deeply grateful for Cathy Michaels, PhD, RN, FAAN inspiration, fortitude, and astute guidance throughout the entire Doctor of Nursing program and particularly this practice inquiry. This capstone project would have not been possible without her support, and specifically her contributions to non-linear thinking, the organization as a complex adaptive system, and program evaluation methodologies.

My wife, Cathy Trinidad, BSN, RN and my sister-in-law, Carol Tyler, BSN, RN both encouraged me to seek the nursing profession as a meaningful and fulfilling journey. My commitment to nursing as a profession and serving vulnerable populations as a cause would have never come to fruition without their support.

I thank my good friend Gene Bellinger, who has made the multifaceted subject of systems thinking understandable to much wider audiences, and I especially express my gratitude to Geoff McDonnell, PhD, for his work applying systems thinking to healthcare safety and quality. It is through this work that this capstone project was possible.

DEDICATION

To all of those and their loved ones harmed by a preventable medical error.

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ABSTRACT

VitalSmarts® Crucial Conversations™ general program theory might be a possible countermeasure addressing organizational culture and communication factors affecting quality and safety. This practice inquiry reports: a VitalSmarts® Crucial Conversations™ general program logic model, a major medical center's Crucial Conversations™ historical implementation program logic model, a clinical exemplar central line associated blood stream infection program logic model; and, findings that describe the fidelity of the major medical center's Crucial Conversations™ historical implementation and clinical exemplar central line associated blood stream infection program logic model to the VitalSmarts® Crucial Conversations™ general program logic model. The results demonstrated there was no fidelity between the major medical center's Crucial Conversations™ program logic model and the VitalSmarts® Crucial Conversations™ general program logic model. The clinical exemplar CLABSI program logic model and VitalSmarts® Crucial Conversations™ general program logic model fidelity differed in intended outcomes. The results might suggest that program adaptability along with program fidelity are factors that influence program strength, and these factors must be uniquely balanced within organizational dynamics to realize intended outcomes. The formative evaluation and program logic model might be a feasible methodology and applicable tool for exploring quality and safety within complex adaptive systems, such as organizational culture, where constraints possibly could exclude more rigorous scientific methodologies until factors are more understood.

CHAPTER 1: INTRODUCTION

Andel, Davidow, Hollander and Moreno (2012) indicated that after 30 years and numerous quality and safety improvement initiatives, approximately 200,000 hospitalized patients die each year from preventable medical errors, and millions of patients may be exposed to harm from errors. Andel et al. (2012) also signified that the annual cost of medical errors in the United States is estimated at $19.5 billion dollars, with 87% of costs directly associated with additional medical costs. These economic realities have forced health care leaders and professionals to look anew and differently at patient safety and preventable medical errors. The mortality and high costs from medical errors might suggest that patient safety and programs that promote patient safety practices should be the utmost concern for the health care industry.

Mitchell (2008) used the Institute of Medicine [IOM] definition of patient safety as the "prevention of harm to patients" (para. 6), and further defined patient safety practices as reducing the risk of adverse events related to heath care. Are there effective safety programs and/or practices that reduce the risks for hospitalized patient's exposure to medical error and adverse events? Could such a program generate locally generalizable results within a limited pilot program focused on a particular clinical issue?

Magyary, Whitney and Brown (2006) proposed that the practice inquiry [PI] is a vehicle for scholarly exploring questions involving improving the health care system and for demonstrating research translation, along with showing connections to improving patient care and overall population health. This PI will examine professional collaboration and communication factors that are related to near misses, errors, adverse events, and sentinel events.

Maxfield, Grenny, Lavandero and Groah (2011) suggested that training professionals to engage meaningfully in conversations where the stakes are high and probability of disruptive

behaviors is likely, defined as Crucial Conversations™, leads to improved results including patient outcomes. This PI will use rigorous formative program evaluation methodologies to analyze the formal general VitalSmarts® Crucial Conversations™ program, analyze an implementation of the Crucial Conversations™ program at a major medical center in the southern region of the United States based on the book *Crucial Conversations: Tools for Talking when the Stakes are High* (Patterson, Grenny, McMillan & Switzler, 2011a), and analyze an established quality and safety framework illustrating a central line associated blood stream infection [CLABSI] prevention program. The results of the formative program evaluations are program logic models.

The individual goals of this PI and the formative evaluation of Crucial Conversations™ program theory as applied to health care and a major medical center are explicit. The first aim for this PI is to construct a logic model of the VitalSmarts® Crucial Conversations™ program from the literature by identifying the program theory in terms of inputs, activities, output, linking constructs, and outcomes. The second aim is to describe the medical center's historical implementation of the Crucial Conversations™ program, including program objective, training, other activities and outcome metrics and results expressed as a logic model. The third goal is develop a program logic model illustrating integrating the VitalSmarts® Crucial Conversations™ program theory within an established patient safety and quality framework as a clinical exemplar demonstrating reducing hospital acquired CLABSI's at the medical center. The fourth aim is to conclude the formative program evaluation, comparing logic models from Aims 1 through 3 in order to determine the fidelity of the medical center implementation of the Crucial Conversations™ program.

Background

Patients with injuries and diseases are admitted to hospitals for conscientious care provided by various healthcare professionals; however, the landmark study by Kohn, Corrigan and Donaldson (1999) first suggested that approximately 90,000 untoward deaths per year are caused by hospital-related medical errors. Andel et al. (2012) estimated approximately 200,000 deaths per year from medical errors. This alone suggests an ominous statistical trend; however, mortality does not address the complete picture of healthcare safety that includes experiencing errors, defined as "mistakes, close calls, near misses, active errors, and latent errors," and adverse events, defined as an event causing "patient harm such as medical injury and iatrogenic injury" (Thomas & Petersen, 2003, p. 62). A sentinel event describes a particular type of severe adverse event where serious physical or psychological harm results, such as the loss of a limb, function, or death (Kizer & Stegun, 2005; Kobs, 1998).

Rothschild et al. (2005) studied an ICU environment where patients were most vulnerable to iatrogenic injury because of illness severity, and found that 20.2% of patients experienced one or more adverse events, with 45% of the events assessed as preventable. Vries, Ramrattan, Smorenburg, Gouma and Boermeester (2008) reported that approximately 9.2% of all hospitalized patients experienced an adverse event, with roughly 43.5% being preventable. The risk from harm during hospitalization is still not improving, as studies suggest that possibly one of three hospitalized patients experience an adverse event, and that a renewed focus and resources must be committed to reverse susceptibility to error within the system (McKinney, 2012).

Wachter (2010) pointed out that the current healthcare movement to improve patient safety begins with the classic study of Kohn et al. (1999), who recognized patients' vulnerability

to medical error. Moreover, Wachter (2010) also denoted that the lack of progress to date demonstrates the continued importance for stressing hospital safety to prevent errors and adverse events. One area of emphasis for error prevention is organizational culture and employee attitudes toward patient safety (Sorra, Famolaro, Dyer, Nelson & Smith, 2012).

The Anatomy of an Error: Hospitals as Complex Adaptive Systems

Hospitals are complex adaptive systems that depend on decisions and communications diffused through intricate social networks (Benham-Hutchins & Clancy, 2010). Reason (1990) proposed that the decision junctures where human error can adversely influence a complex system represent a system vulnerability to failure, or a type of failure point within the system. The human frailty within a system at these failure points are classically categorized as unintentional human error, negligence, intentional rule violations, and reckless conduct (Marx, 2001). Avoidable adverse events resulting from human error occurring at failure points represent system vulnerabilities (Emanuel et al., 2008; Reason, 1990). Reason further postulated that a single breakdown in a complex system typically does not tend to produce serious events, but the compounding of poor decisions described as a chain of events may develop into a sentinel event, or what Peterson (1996) defined as a disastrous event involving many harms at multiple levels.

Henneman (2007) analyzed human error in the ICU and determined that communication errors are the single highest attributable cause for errors and adverse events. Communication barriers also influence the underreporting of errors and adverse events due to social and various latent factors (Emanuel et al., 2008; Henneman, 2007). Resar (2006) pointed out that reported disastrous events, sentinel events, adverse events, and recognized errors mark significant vulnerabilities in the system; however, many more vulnerabilities exist within the system that are not often acknowledged or measured by hospital systems. Resar (2006) provided the example

that clinicians for a variety of reasons fail to apply proven evidence to common care processes less than 80% of the time. This failure emphasizes the lack of systemic feedback loops and preventive measures that enables many failures to go unnoticed until the occurrence of a more serious reportable event.

The Agency for Healthcare Research and Quality [AHRQ] Quality Indicators™ Toolkit for Hospitals (2012) provided 28 inpatient quality indicators that furnish hospital leadership with critical signals signifying possible patient safety problems underlying the system. However, meaningful and actionable quality indicators and indices has long been a challenge complicated by the interaction of confounding variables such a price, insurance status, and number of procedures that influence quality outcome indicators (Bridges, Dor & Grossman, 2005). Hospital care systems are vulnerable to the frailty of human error and the probability of error when combined with the high costs of medical errors form the business case for multifaceted solutions preventing failures and adverse events (Hines, Luna, Lofthus, Marquardt & Stelmokas, 2008). What options are there to reliably prevent medical errors leading to adverse events, and further strengthen the chain of events so as to avoid adverse outcomes?

High Reliability Organizations

A high reliability organization effectively manages systems complexity and risk factors within environments to minimize the likelihood of failures leading to tragedies (Hines et al., 2008). Hines et al. further defined attributes of a high-reliability organization as risk awareness, a focus on continuous root cause analysis and avoiding overly simplistic parsimony to explain complex causations for failure, an overarching passion to understand failure despite no or low consequences of events, a regard for expertise, and trained preparedness in the event of a failure.

Resar (2006) supported this definition, adding that high reliability organizations are further defined by the organization's distinct and consistent processes, along with a culture of safety rather than the singular diligence of expert individuals. Healthcare high-reliability organizations must implement programs within a culture that fully utilizes senior leaders, team leaders, and front line staffs to differentiate the evidence-based interventions that improve outcomes balanced with risks and benefits, assess baseline process performance, investigate process reliability based on criteria, improve processes, and confirm that patients receive the evidence-based interventions (Pronovost et al., 2006). This aligns with Sammer et al. (2010), who defined seven key elements of a patient safety culture as: leadership, teamwork, evidence-based, communication, learning, just, and patient-centered, along with emphasizing that shaping this culture within the larger organization requires leadership accountability.

Programs for Implementing High-Reliability Organizations

Leveson (2011) advocated that simply instating reliable components within an organization does not result in a high-reliability organization, and reliability does not directly equate to safety. Leveson advised that safety and reliability can be polar-opposite forces. Leveson provided the example of a 'high-reliability' organization reliably reproducing poor processes with inherent safety weaknesses that eventually result in safety failures. This implies a complex relationship between reliability and safety involving human interactions within a system.

McDonnell (2013) described the example of the medication error as the result of interactions of humans within complex systems. McDonnell's example might clarify the vulnerabilities described by Leveson (2012). Figure 1, medication error causal loop diagram, depicts McDonnell's causal loops for serious medications errors, such as predisposed drug

interactions, medication complexity, and the patient age and comorbidities. There are stages of

this process where reliable components alone within a system might not ensure patient safety.

FIGURE 1. Medication Error Causal Loop Diagram (McDonnell, 2013).
(*This figure illustrates the system of positive and negative feedback loops influencing the number and causes of medication errors.*)

High-Reliability Organizations and Just Culture

Frankel, Leonard and Denham (2006) suggested that high-reliability organizations

depend on a "just-culture" that is open to exploring weaknesses without constraints to the same

degree as touting the organization's strengths. Frankel et al. also emphasized that a high-

reliability organization depends on the organization being accountable, without focusing on

individual blame as an important attribute that keeps communication channels open and limits a

constraint on error reporting. The balance between a "just culture" and individual accountability remains a difficult organizational question (Wachter, 2010). Individual accountability must consider a spectrum of human errors that range from simple mistakes to willful disregard of the rules, or violations (Amalberti, Vincent, Auroy & de Saint-Maurice, 2006). Amalberti et al. further explored the concept that systems factors such as the costs of compliance can embolden individuals to violate system rules and regulations, or certain individuals might simply be more prone to violate the system. There is a spectrum of responsibility and accountability that ranges from an exclusive systems-centered approach to focusing solely on the individual culpability (Gorzeman, 2008).

The health care sector remains fixated on individual accountability, despite the successful demonstration within the aviation industry of a balanced organizational approach to responsibility and culpability weighed with the impact of reporting errors (Merry & Smith, 2001). Gorzeman (2008) presented an interesting perspective, suggesting that a just culture must be balanced across individual accountability with an emphasis on legal regulation. The conflicting issues of accountability, openness to uncover problems, and overall exposure to liability are not new, and have been explored within the aviation safety industry. Both the aviation safety industry and the healthcare sector share a reliance on public trust, a need for safety management systems to ensure that trust, and a dependency on high-reliability organizations (Leape, 2002; Nance, 2008).

The Federal Aviation Administration [FAA] (2006) illustrated the critical equilibrium between policing and a safety culture enacting standards to regulate the public air transportation sector. The FAA determined that a critical balance point exists between the openness required to identify mistakes originating from simple human error and the need to hold individuals and

corporations accountable for willfully wanton negligent acts. The FAA also encouraged reporting of all incidents that risks safety without fear of regulatory reprisals, with the exception of ex post facto reporting of criminally negligent events under investigation. Likewise in the healthcare sector, the openness to freely report weaknesses and incidents are measurable attributes that align with a just culture and patient safety (Jones, Skinner, Xu, Sun & Mueller, 2008). The North Carolina Board of Nursing is exploring this balance.

The North Carolina Board of Nursing (n.d.) proposed a five-point scale to assess errors in terms of a spectrum of behaviors ranging from simple human error, at-risk behaviors, and reckless behaviors, and the conditions in which the error occurred such as scope of practice, experience level, policies, type of decision, and ethics. These two scales form a matrix evaluating the error seriousness and need for regulatory corrective action as opposed to training and education. The evaluation of error using a scale like this may provide data enumerating the types of errors identified and prevented from escalating into an adverse event. In developing institutional programs like the FAA (2006), the question of transparency remains. Will open communication channels that balance accountability within the healthcare sector enable transparency (Nance, 2008)?

Crew Resource Management and Healthcare

Nance (2008) proposed that the concept of crew resource management [CRM], or specific training on managing aviation safety as a collaborative team applies to the health care sector. O'Daniel and Rosenstein (2008) suggested specialized medically focused CRM training centered on managing specific healthcare safety hazards. O'Daniel and Rosenstein cited a study at Eglin Air Force Base during 1997 to 2001, where collaborative medical teams trained in CRM modalities resulted in increased error reporting and decreased adverse event rates. Sundar et al.

(2007) provided examples of CRM training using distinctive anesthesia safety situations, and using the scenarios to educate groups on the attributes of effective teams. Sundar et al. defined these attributes as "team leadership, backup behaviors, mutual performance monitoring, communication and adaptability, shared mental models and mutual trust" (p. 286). Are there specific patient safety risks in the hospital that align with CRM type training?

Van Den Bos et al. (2011) proposed that the major risks of patient harm sort into categories according to probability and cost of occurrence. Van Den Bos et al. reported that pressure ulcers and postoperative infections are the leading adverse events caused by preventable errors, and preventable errors causing these events are specific targets for quality and safety improvement programs. Van Den Bos et al. also suggested that rarely occurring adverse events associated with a high-cost per incident might present a unique challenge and opportunity. For example, Van Den Bos et al. assessed central-line infections cost at approximately $83,365 per incident, and preventing a small number of incidents would have a significant cost benefit. Therefore, the central line cannulation procedure is one example that might present an opportunity for focused CRM training yielding significant results.

Executive Leadership, 'WalkRounds' and High-Reliability Organizations

Surveys taken in the years following Kohn et al. (1999) demonstrated that a continual senior leadership focus is one critical factor for organizational culture change toward quality improvement and emphasis on safety (Frankel et al., 2003). Frankel et al. (2003) further proposed that executive and senior management must actively engage the organization and demonstrate a focus on patient safety in a process called 'WalkRounds.'

Frankel, Leonard and Denham (2006) described the dependency of a just culture on open communication channels between senior management and the organization. 'WalkRounds' is a

program that promotes senior management engagement in open dialogue, soliciting feedback

with the organization and fostering teamwork between senior management and the organization.

The elements of open dialogue and teamwork are essentials of a high-reliability organization.

The opposite end of the spectrum is employee and management attitudes that devalue autonomy

and teamwork, and Frankel et al. (2006) suggests these attributes contribute to error rates.

Executive 'WalkRounds' shape the organization's culture by demonstrating policymaking and

systems level emphasis propagated throughout the organization. This reinforces the importance

of building an organizational culture that focuses on individuals autonomously correcting errors

and preventing adverse events, or a 'just culture,' as opposed to patient safety depending on

management focusing on investigating failures and determining culpability.

Hospital Quality and Safety Programs Supporting Highly Reliable Organizations

AHRQ (2013) recommended inculcating patient safety as evidence based teamwork

methodology promoting four skills: leadership, communication, situation monitoring, and mutual

support. This program is called TeamSTEPPS™. The TeamSTEPPS™ program provides

structure and encourages training teamwork skills at all levels throughout healthcare and

healthcare organizations (King et al., 2008). TeamSTEPPS™ is a teamwork methodology

packaged as a complete program that provides a critical factor for high-reliability organizations

(Baker, Day & Salas, 2006). However, the literature suggested that errors and adverse events still

occur at notable rates despite optimum implementation efforts (Deering et al., 2011; Mayer et al.,

2011; Riley et al., 2011).

The Crucial Conversations™ program should also encourage a highly reliable

organization (Henriksen & Dayton, 2006). Seven critical factors, described as Seven Crucial

Conversations™, are primarily involved with: "broken rules; mistakes; lack of support;

incompetence; poor teamwork; disrespect; and, micromanagement," correlate with variance of patient outcomes (Maxfield, Grenny, McMillan, Patterson & Switzler, 2005, p. 3). These seven critical factors form a fundamental concept describing disruptive behaviors relevant to healthcare and preventable errors (Grenny, 2009; Maxfield et al., 2005).

Longo (2011) described disruptive behaviors as any implicit or explicit actions that adversely affect the health care team. Longo also provided specific examples that range in a spectrum from ostracizing to bullying and workplace violence. Longo continued that behaviors such as sighing and demeaning facial expressions cause friction and are disruptive behaviors. Disruptive behaviors correlate with nurse-physician communication breakdowns and adverse outcomes (Rosenstein & O'Daniel, 2005). Maxfield et al. (2011) mentioned these disruptive behaviors in narratives that described interactions requiring Crucial Conversations™ to prevent patient harm.

Description of VitalSmarts® Training Programs

VitalSmarts® owns all rights to The Seven Crucial Conversations™ and Crucial Conversations™ training programs (VitalSmarts, 2013). VitalSmarts (2013) described VitalSmarts® as a business organization specializing in innovative corporate training. There are important differences in trademarked verbiage. A Crucial Conversation™ is a specific communications theory and program published in the book, *Crucial Conversations Skills* (Patterson, et al., 2011b), that enables people to engage in meaningful dialogue in high-risk situations, where the conversation is likely to result in disruptive behaviors such as purposeful silence or possibly violence. There are seven specific situations, or Seven Crucial Conversations™, which Maxfield et al. (2005) stated as providing benchmarks explicitly linked to health care related adverse events defined as "broken rules; mistakes; lack of support;

incompetence; poor teamwork; disrespect; and, micromanagement" (p. 3), that VitalSmarts®

promotes as the Seven Crucial Conversations for Healthcare™. VitalSmarts® offers a formal

general VitalSmarts® Crucial Conversation™ training program to individuals and organizations.

(VitalSmarts, n.d.). VitalSmarts® also offers formal Influencer™ and ChangeAnything™

training to individuals and organizations that enable individuals to effectively engage in

significant dialogue within group dynamics (VitalSmarts, 2013).

The VitalSmarts® Crucial Conversation™ program consists of multiple training

packages from training individuals to engage in difficult but critical conversations involving

high-risk conversations that are likely related to errors and adverse events, to training trainers to

use VitalSmarts® resources to train individuals. There is also specific training and resources for

healthcare managers and hospital executives demonstrating the application of the Crucial

Conversations™ training to the specific Seven Crucial Conversations™ throughout an

organization (VitalSmarts, 2013).

The General VitalSmarts® Crucial Conversations™ Training Program

The general VitalSmarts® Crucial Conversations™ Training program is based on

principles developed in Patterson et al. (2011a). The fundamental assertion is that a Crucial

Conversation™ involves "opposing opinions, strong emotions, and high stakes" (Patterson, et

al., 2011b, location 220), and highly charged emotional situations produce catecholamine

induced flight or fight reactions leading to behaviors that either withdrawal from the

confrontation or possibly violent behaviors (Patterson et al., 2011b; Smolka et al., 2005).

Patterson et al. (2011b) described adverse behaviors ranging in a spectrum defined as follows:

avoiding Crucial Conversations™ altogether; withdrawal from Crucial Conversations™ once

engaged; silence; inappropriate humor and sarcasm; controlling and dominating the conversation, engaging in verbal attacks; and, in worse cases, engaging in violent behaviors.

Patterson et al. (2011a) described situations such as confronting a superior about their breaking patient safety and quality polices as a situation likely to involve opposing views, strong feelings, and high stakes. Patterson et al. (2011a) explained this situation in terms of the fool's choice – bring up the subject and create a lifelong enemy that could malevolently ruin a career or quite possibly demonstrate violent behaviors, or remain eternally silent avoiding a confrontation but allowing the preventable error to happen. Patterson et al. (2011a) presented detailed examples of Crucial Conversations™ such as an innocent billing mistake leading a partner to assume infidelity, or a misunderstanding involving property lines between neighbors. Patterson et al. (2011a) offered a third alternative to the fool's choice and that is a free flowing dialogue that contributes to the shared meaning pool. Patterson et al. (2011b) emphasized exchanging ideas in a safe environment that does not exacerbate emotional values placed on individual meanings but focusing on a conversation that underscores a shared meaning.

The concept of a shared meaning pool is the crux of the Crucial Conversation™ (Patterson et al., 2011b). The authors described the basic premise that twenty very smart individuals all making judgments based on unique understandings and meanings will make poorer decisions than twenty individuals with shared understandings and meanings. Thus the main objective of a Crucial Conversation™ is to contribute to the shared meaning pool through mutual dialogue in a safe environment (Patterson et al., 20011b). Patterson et al. (2011b) also described the process beginning with 'me', or one's own emotions, values, and meanings attached to the conversation and realizing one's own real final objectives for the conversation. The authors proposed that the individual understanding and values attached to a Crucial

Conversation™ is defined as a story, and our stories can contain negative connotations such as being a victim, coloring our perceptions of opposing views and personalizing the conflict in terms as victims, villains, and stories influenced by feelings of helplessness. The authors linked the concept related to our stories and how our perceptions and actions change in the environment of stress.

The key to managing a Crucial Conversation™ is mastering one's own stories and the conversation through a tool called the "path to action – see and hear, tell a story, feel and act" (Patterson et al., 2011b, location 1615). That is recognizing the emotion in a situation and consciously contributing to the shared meaning pool rather than the conversation resulting in disruptive behaviors (Patterson et al., 2011a).

The general VitalSmarts® Crucial Conversations™ training program applies self-evaluation of stressful situations determined before the training to the principles and tools outlined in the book *Crucial Conversations Skills* (Patterson et al., 2011b). VitalSmarts (2013) described the training program as recognizing these perceptions in oneself and begin the process for recognizing these stories in a Crucial Conversation™ using the tools depicted in Patterson et al. (2011b). VitalSmarts (2013) explained that applying real situations to the training allows the trainee to practice Crucial Conversations™ known to the trainee.

Formal Program Implementation

Maxfield et al. (2005) suggested that along with training packages tailored to audiences, a large deployment would consist of anonymous pre-attendance surveys that identify individual roles, perceptions and attitudes, experience with difficult situations and ability to act meaningfully, and anticipate reactions given certain situations. VitalSmarts (2013) recommended self-directed post training survey evaluations that connect the training with real situations.

Follow-up organizational surveys are recommended to assess program effectiveness (Maxfield et al., 2011). Maxfield et al. (2005) suggested ongoing tracking of the frequency of incidents, surveying the number of times trainees applied the Crucial Conversations™ skills, and assessing the difficulty of applying learned skills to the situation.

Maxfield et al. (2011) described a four-step change management implementation process. This consists of formulating a design team, identifying situations with high risks and where disruptive behaviors might occur, defining the expected behaviors to ensure patient safety, and developing a set of organization-wide standard operating procedures for expected behaviors in these high-risk highly stressful moments. It is recommended that nurses and doctors regularly share stories where a Crucial Conversation™ prevented an error from occurring, or an error from becoming an adverse event. It is also important to share stories describing situations where patient harm occurred and a crucial conversation did not occur or the team remained silent. The organization needs champions promoting a culture to have crucial conversations, and the organization needs to hold management and team members accountable. It is vital to regularly publish metrics. The American Association of Critical Care Nurses [AACN] Crucial Conversations™ survey might be an example of a metric providing organizational feedback

The American Association of Critical Care Nurses, in conjunction with VitalSmarts®, created a 15-question survey to pretest healthcare organizations implementing the Seven Crucial Conversations™ Program (VitalSmarts, 2005). This would establish pre-training organizational benchmarks on the existence and frequency of situations addressable by the Seven Crucial Conversations™ program, as well as a starting baseline for measuring change management measures.

Statement of the Problem

There is evidence of increasing numbers of near misses, errors, and adverse events occurring in the course of delivering health care. Deming (1987) stated that "94% of the time failure is inherent in the system only 6% is attributed to special causes" (p. 315). The evidence presented in the background might suggest a need to look at health care systems within the hospital environments. One area of focus could be professional collaborative dynamics and organizational culture as factors that influence patient outcomes, and research has demonstrated that these factors can be improved. A preventable error must be recognized to be corrected, and evidence suggests that the organizational culture influences the recognition of near-misses and preventable errors.

Leape (2002) described inertia against the voluntary reporting of errors and adverse events that are evident by the lack of reports received, and thus proposed that assessing the totality of errors and adverse events within organizations as well as healthcare wide is very difficult. Flynn, Barker, Pepper, Bates and Mikeal (2002) showed a statistically significant higher number of observable medication errors than self-reported medication errors. Wolf and Hughes (2008) suggested that only a fraction of errors are reported. Wolf and Hughes further explained that near misses are 300 times more likely to occur than an adverse event. Moreover, Wolf and Hughes stated that near miss events provide crucial information for preventing an adverse event, but near miss events are likely not self-reported due to no one noticing the error or the lack of harm drawing attention to the error. Mandatory reporting might provide better indications for risks of an adverse event.

Today, mandatory reporting of events involving Medicare recipients is required and reported publically. Levinson (2010) reported that approximately 27% of Medicare patients

experience an adverse event or are temporarily harmed while hospitalized, and that 44% of these events are preventable. Rosenstein and O'Daniel (2008) found that 67% of respondents observed disruptive behaviors as connected to an adverse event. Grenny (2006) proposed that the capacity to meaningfully engage in dialogue and effectively address disruptive behaviors in the moment is critical to counteracting errors and adverse events. A single individual competent in communication can prevent an error and avert adverse events; notwithstanding, increasingly greater numbers of trainers and employees skilled at engaging in crucial conversations subsequently provides more opportunities to prevent errors (Maxfield et al, 2011). Maxfield et al. (2011) advocated for a focus on training individuals to immediately address errors and adverse events. Maxfield et al. (2011) further supported this concept by referring to a study based on the convenience sampling of 2,883 nurses that demonstrated a 58% response rate acknowledging instances where a Crucial Conversation™ would have prevented a near miss, adverse event, or sentinel event. Maxfield et al. (2011) also pointed out that in these cases, the safety sentinel, such as a check list or an alert, identified a safety issue, but the individual noting the event was not proficient enough to speak up or enable others to listen.

There might be a larger organizational problem advancing beyond training individuals to meaningfully intercede to prevent errors. Specifically, there might be many more challenges taking the next step from training individuals in Crucial Conversations™, and inculcating a Crucial Conversations™ Program within a health care organization. Henriksen and Dayton (2006) discussed that organizational inertia and resistance to change along with ingrained organizational behaviors can act as a force fostering disruptive behaviors despite individual training sessions. Assessing the organization's attitudes would be critical in understanding the effects of organizational behaviors on individuals having crucial conversations.

Formal Program Reviews

The literature was reviewed to identify implementation of the VitalSmarts® Crucial Conversations™ and Seven Crucial Conversations™ programs. The search terms of *Crucial Conversations* and *Seven Crucial Conversations, program, review,* and *implementation* using CINAHL, Cochrane, MEDLINE, and *Web of Science* databases identified 15 articles. Of the 15 articles identified, two articles were editorial comments as opposed to being peer-reviewed articles, and no articles described performing rigorous program evaluations. Thus, a formative program evaluation of the Crucial Conversations™ program would be an interesting and meaningful contribution to the nursing and interprofessional literature supporting quality and safety improvement in hospital care.

Program Evaluation

The Centers for Disease Control and Prevention [CDC] (1999) defined program evaluations as; "effective program evaluation is a systematic way to improve and account for public health actions by involving procedures that are useful, feasible, ethical, and accurate" (p. 1). These are the two fundamental perspectives of formative and summative program evaluation that form the basis for performing a program evaluation (McDavid & Hawthrorn, 2006). This PI focuses on a formative evaluation. Stetler et al. (2006) defined a formative evaluation as "a measurement approach capable of providing critical information about implementation…" (p. s1). Stetler et al. also provided additional context as follows:

> "Formative evaluation, used in other social sciences, is herein defined as a rigorous assessment process designed to identify potential and actual influences on the progress and effectiveness of implementation efforts. Formative evaluation enables researchers to explicitly study the complexity of implementation projects and suggests ways to answer questions about context, adaptations, and response to change." (Stetler et al., 2006, p. s1)

The definition of a formative evaluation offers a stark contrast to the definition of summative evaluation. Habicht, Victora and Vaughan (1999) described a summative evaluation as a tool for decision makers "to continue, change, expand, or end a program" (p. 11). Habicht et al. defined two major evaluation foci as the program's performance and impact.

Fundamental to designing a program evaluation are the standards of usefulness, accuracy, ethics, and feasibility, and these attributes are the chief guidelines shepherding a program evaluation design (Centers for Disease Control and Prevention, 1999; National Institutes of General Medical Sciences, 2011). These guidelines should provide an overarching framework for managing the complexities inherent to a program evaluation, and provides the basis for constructing the program evaluation framework.

Within the guidelines set by the National Institutes of General Medical Sciences (2011a) and National Institutes of General Medical Sciences (2011b), there is a possible singular and simple framework for conducting a formative program evaluation as applied to a complex adaptive system. The literature suggests that hospitals are complex adaptive systems, and Eoyang and Berkas (1999) proposed that evaluating complex adaptive systems includes understanding underlying open systems that could involve multiple multifaceted exogenous variables influenced by latent factors. McCabe, Potash, Omohundro and Taylor (2012) provided the archetypical example demonstrating a complex continuous improvement and evaluation program as a holistic feedback system. McCabe et al. further described multifaceted interactions and feedback mechanisms interrelating within a structure defined by processes, technologies, and culture as a system. Ancker, Kern, Abramson and Kaushal (2012) depicted simplifying evaluating health information technologies interacting within a complex system using the fundamental speed, cost effectiveness triangle, and the multiple inputs. The worldview of

traditionally evaluating systems using the concepts of speed, costs, and effectiveness might extend into other systems processes and outputs of a complex health care improvement system (Madhok, 2002).

McDavid and Hawthorn (2006) stated that a program evaluation simply asks the question "to what extent, if any, did the program achieve its intended objectives" (p. 15). McDavid and Hawthorn further defined the concept of assessing program effectiveness in terms of evaluating performance compared to intended objectives as the crux for performing program evaluations. This PI proposes that the most comprehensive and yet most succinct program evaluation begins with the intended objectives or program goals, and constructing a series of steps that outline a feasible path toward those goals.

Evaluation Steps

The formative evaluation should demonstrate rigor at all levels. Establishing objectivity and consistency might be best evidenced through a process that fulfills a series of established evaluation steps. Stetler et al. (2006) summarized the formative evaluation into three main abstract concepts: an implementation goal, formative evaluation activities, and value for stakeholders. CDC (2011) specified six high-level steps as a program evaluation framework: "engage the stakeholders; describe the program; focus the evaluation, design; gather credible evidence; justify conclusions; ensure use and lessons learned" (para. 2). The program logic model is one paradigm providing a blueprint for constructing a formative evaluation demonstrating these concepts.

Engage the Stakeholders

CDC (1999) defined stakeholders as "the persons or organizations having an investment in what will be learned from an evaluation and what will be done with the knowledge" (p. 7). It

might be noteworthy to state that a formative evaluation focuses on implementation. Stakeholders are critical elements and exert varying degrees of influence on implementation (Botezatu, Hult, Kassaye Tessma & Fors, 2010). Durlak and DuPre (2008) described the importance of implementation research, stakeholders, and understanding different levels of implementation as critical factors influencing program outcomes. Though National Institutes of General Medical Sciences (2011b) defined generalizability as a distinct contrast between evaluation and research, the stakeholders could draw generalizable conclusions regarding program implementation from a formative evaluation.

Within the context of research, Concannon et al. (2012) defined the term stakeholder as "an individual or group who is responsible for or affected by health-and healthcare-related decisions that can be informed by research evidence" (p. 986). Concannon et al. further classified stakeholders into seven categories: patients and public, providers, including nurses, physicians, allied health providers, emergency medical personnel, social workers, purchasers, payers, policy makers, product makers, and principal researchers. Institute of Medicine (2010) classified stakeholders into six main categories according to a unique perspective and value derived from the program: economic, patient/consumer, employer, provider, payers, and manufacturers. The expanse of possible stakeholders for any program could be overwhelming, and possibly rendering a program evaluation unfeasible. The levels of engagement might provide a manageable solution.

Concannon et al. (2012) termed engagement as "a bi-directional relationship between the stakeholder and researcher that results in informed decision-making about the selection, conduct, and use of research" (p. 986). Varvasovszky and Brugha (2000) grouped stakeholder relationships into five main categories: "involvement in the issue; interest in the issue; influence;

position; and, impact" (Table 1). Varvasovszky and Brugha further described a spectrum of stakeholders that ranges from high interest, high influence, supportive versus opposition, and high impact, to low interest, low influence, supportive, and low impact. These definitions and constructs should form the basis for stakeholder engagement by focusing scarce resources on the most influential stakeholder groups, and in particular, addressing high impact, high influence stakeholders opposing the program.

Describe the Program

CDC (1999) suggested an accurate and comprehensive program description depicting the target program as the second step for a program evaluation. CDC (1999) expressed seven dimensions for describing the target program: need, expected effects, activities, resources, stage of development, context, and logic model.

Evaluation Design

Stetler et al. (2006) outlined three categories of focus for formative program evaluations: developmental, implementation, or progress focus. Stetler et al. (2006) further defined the data collected for a developmental focused formative program evaluation as: "(a) actual degree of less-than-best practice; (b) determinants of current practice; (c) potential barriers and facilitators to practice change and to implementation of the adoption strategy; and (d) strategy feasibility" (p. s3).

Gather Credible Evidence

Scheer and Workman (2012) suggested that program evaluations using program logic models is a capable means for gathering significant research data with long lasting relevant impacts. CDC (1999) listed multiple sources of information for gathering credible evidence

including personal interviews, observation, document analysis, peer reviews, concept mapping, simulation/modeling, and cost accounting.

Justify Conclusions

CDC (1999) depicted the concept of justifying conclusions in two dimensions: standards as aligned with the stakeholders and the analysis of gathered data and extension of learning using established methodologies. Shadish, Cook and Leviton (1991) provided an extensive linkage between program evaluation theory and practice including deriving value from indirectly exploring latent variables. Goeschel, Weiss and Pronovost (2012) demonstrated the logic model as an application of rigorous program evaluation methodologies objectively rationalizing conclusions.

Ensure Use and Lessons Learned

CDC (1999) specified design, preparation, feedback, follow-up, and dissemination of principal concepts guiding the use of knowledge gained through program evaluations. Christenbery and Latham (2013) discussed that dissemination of the outcomes generated through PI and scholarly works "is an essential component of Doctor of Nursing Practice (DNP) education process" (p. 16). The scholarly PI process prima facie fulfills these guidelines, including inviting the public for comments.

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Program Logic Model

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McDavid and Hawthorn (2006) as well as Goeschel et al. (2012) recommended a program logic model as an optimum methodology for program description and program analysis. A program logic model is fundamentally based on a logical framework approach that succinctly and clearly describes a program from beginning to end, and from bottom to the top. There are

subtle differences in approach; however, both models should fulfill the requirements described by CDC (1999).

McDavid and Hawthorn (2006) illustrated the logic model within a horizontal frame work connecting program inputs, components, implementation objectives, outputs, linking construct, as well as short term and long term goals. In this model, resources are inputs into processes or activities defined as program components that perform work toward intended objectives measured as outputs. A critical attribute of this logic model is the connection or *linking construct* between the implementation and the intended objectives.

Goeschel et al. (2012) stated that a program logic model within a vertical logic framework structures a program hierarchically, described as inputs, activities, outputs, objectives, results, and strategic goal. Each step in the vertical framework is further defined by key assumptions, objectively identified indicators, and means of verification. The program objective summarizes vertical logic framework into a single overall measurable program purpose.
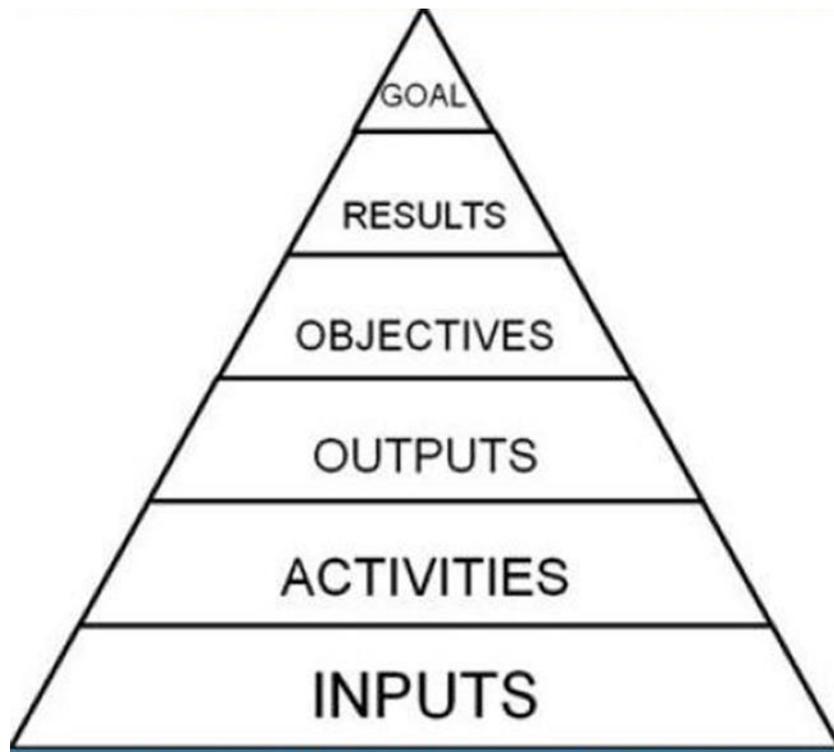
FIGURE 2. Vertical Logic Framework (Goeschel et al. 2012, fig. 1)

Statement of Purpose

The literature to date demonstrated that healthcare meets the criteria for establishing a high-reliability organization where the costs of errors are high but the event frequency is low (Baker et al, 2008). There are clear advantages to fostering open communication channels and promoting a just culture to identify errors and points of failure that lead to adverse events and harm to the patients. A focus on teamwork has theoretical foundations, but studies have demonstrated a lack of measurable impact. Crucial Conversations™ program theory proposes that trained individuals noting an error can assert themselves and are able to either correct the error and/or prevent the error from progressing into an adverse event. The purpose of this PI is to

perform a formative evaluation of Crucial Conversations™ program theory at a major medical center.

Goeschel et al. (2012) recommended the utilization of a program logic model as a template for evaluating the invested resources, the processes, objective measurements, and identifying the achievement of intended goals. The template also provides the basis for gauging specific program implementation goals, and Crucial Conversations™ program theory for reducing errors, adverse outcomes, and sentinel events. The utilization of a rigorous program evaluation should provide evidence of the relationship between implementing Crucial Conversations™ program theory to quality and safety, defined in this PI as reducing the risk of adverse events. A particular focus of this PI is the relationship of Crucial Conversations™ program theory and reducing the risks of errors, and adverse events associated with intensive care units [ICU]. Rothschild et al. (2005) suggested that unintentional human error plays a significant role in ICU errors and adverse events.

Significance

This PI addresses multiple significant issues concerning hospital health care safety and quality. The evidence demonstrates an increasing preventable mortality rate from 90,000 per year reported in 1999 (Kohn, Corrigan & Donaldson, 1999), to approximately 200,000 per year in 2008 (O'Daniel & Rosenstein, 2008). AHRQ (2012) reported that given 26 hospital-reportable patient safety indices, two indices worsened by 1% or more, and 10 indices improved by 1% or more; however, other reportable hospital indices showed no measurable worsening. Van Den Bos et al. (2011) calculated the average cost of a preventable medical error as approximately $11,366. Van Den Bos et al. also proposed that errors range in both probability of occurrence from very high probability to very low probability of occurrence along with assessing the impact

of an error measured in terms of costs, yields a decision matrix for focusing resources and determining program directions. This evidence suggests that patient safety is a continuing problem of great interest that might be feasibly addressed by a structured program.

Given that the interactions of professionals providing health care for hospitalized patients are extremely complex, evaluating these complexities might provide significant background for further understanding. Bloomberg (2011) suggested that failures in communication are the leading cause of adverse events, and improving professional collaboration and interactions are essential for improved patient outcomes. Varpio, Hall, Lingard and Schryer (2008) described a complex interaction of activity systems consisting of rules, individuals, tools, communities, objectives, and division of labor compounded by each individual of the interprofessional team working from a unique activity system. Maxfield et al. (2011) proposed seven causes, or the Seven Crucial Conversations™, as the fundamental breakdown in communication between team members. Maxfield et al. (2005) simply stated that "[The Silence Kills™ study] suggests that improvement in these seven crucial conversations could not only contribute to significant reductions in errors, but also to improvements in quality of care, reduction in nursing turnover, and marked improvement in productivity" (p. 2). These concepts might support interprofessional collaboration and communication as factors that influence medical errors. On a smaller scale, the lessons learned from a program review could be significant to future organizations implementing Crucial Conversations™ program theory.

This PI explores communication as human factors involved with errors and adverse events, along with communication as a human factor connected with preventing errors and adverse events. For example, a formal analysis of the Crucial Conversations™ program theory could begin to explain communication in terms of human factors involved with the phenomena

described by Cavallazzi et al. (2010) involving poorer patient outcomes and mortality based on temporal variations in ICU admissions.

CHAPTER 2: METHODS

This chapter outlines the methods proposed to conduct a formative program evaluation of the VitalSmarts® Crucial Conversations™ implemented at a major medical center located in the southern United States to assure safety by preventing medical error. The VitalSmarts® Crucial Conversations™ program trains individuals to effectively communicate and assert corrective interventions within difficult and error-prone situations, including situations involving disruptive behaviors (VitalSmarts, 2012). This training was designed to prepare individuals to take initiative in identifying situations leading to errors and adverse events, overcome disruptive behavior, and prevent impending errors. This PI will evaluate the Crucial Conversations™ program theory as implemented by a medical center to strengthen achievement of organizational patient safety goals focused on central line infections in the adult intensive care units (ICU). This PI also proposes a methodology for deeper and wider Crucial Conversations™ program theory implementation within the medical center system.

Formative Program Evaluation System Structure

Two frameworks and a specific program analysis tool will be used to guide and organize the formative evaluation. CDC (1999) provides a strategic level context addressing general program evaluation through the process of engaging the stakeholders, program description, evaluation design, gathering credible evidence, justifying conclusion, and ensuring lessons learned. Pronovost et al. (2009) provides a tactical level context that specifically focuses on evaluation of patient safety programs in specifying five specific domains for patient safety and quality research: "evaluating progress in patient safety; translating evidence into practice; assessing and improving culture; identifying and mitigating hazards; and evaluating the association of organizational characteristics and outcomes" (Pronovost et al., 2009, p. 331).

Within these two frameworks, the logic model provides the means for analyzing program fidelity and effectiveness, as in this PI, the program fidelity and effectiveness of the medical center implementation of the VitalSmarts® Crucial Conversations™.

CDC Framework for Program Evaluation in Public Health

The CDC Framework for Program Evaluation in Public Health (1999) provides the overarching framework for organizing a general program evaluation. In chapter one the CDC (2011) program evaluation framework was described in terms of stakeholder engagement, program description, the evaluation itself, evidence collection, conclusions, and knowledge dissemination. These steps provide the chronology and basis for data collection. The CDC steps involving stakeholder engagement, namely executive leadership, administration and clinicians, and knowledge dissemination guide development of the PI's aims.

The CDC (1999) steps involving program description, evidence collection, and conclusions also guide development of this PI's aims Most importantly, within program the description is the program theory composed of statements linking the program intervention to expected outcomes (CDC, 1999). The VitalSmarts® Crucial Conversations™ conceptual program theory will be described based on a review of the literature. The Crucial Conversations™ program theory as implemented at the medical center will be described based on medical center data and information.

Framework for Evaluating Patient Safety

Pronovost et al. (2009) proposed a patient safety and quality framework that specifies five specific domains for patient safety and quality research, as well as processes to link the domains. Pronovost et al. (2009) described processes continually identifying meaningful metrics that quantify patient safety, and correlate metrics with patient safety factors as feedback loops

into the system. These feedback loops also include activities for evaluating the effectiveness, translating evidence base practice to the bedside, evaluating and developing the organization's safety culture, identifying and addressing safety risks, and correlating organizational factors with outcomes (Pronovost et al., 2009).

Pronovost et al. (2009) also addressed assessing an organization's safety culture as an important factor for patient safety and quality. An organization's safety culture aligns along six dimensions, which are "safety climate, perceptions of management, teamwork climate, job satisfaction, stress recognition, and working conditions" (Pronovost et al, 2009, p. 333). Assessing the Crucial Conversations™ program should validate the medical center's safety culture in these six dimensions.

Integrating CDC Program Evaluation and Patient Safety Frameworks

CDC (1999) provided the overarching frameworks for evaluating health care programs. This framework should structure and answer the questions of audience, engagement, evidence collection, and dissemination of findings. Pronovost et al. (2009) provided a specific framework for evaluating patient safety and quality programs. This framework should distinctively organize and resolve the questions applying and translating quality improvement programs within patient safety and quality systems. The integration of these frameworks within this PI should provide the underlying structure for generally evaluating the VitalSmarts® Crucial Conversations™ general program, and explicitly assessing a medical center's implementation of Crucial Conversations™ program theory within a patient safety and quality system.

Program Logic Model

It is through the program logic model that the CDC (1999) and the Pronovost et al. (2009) frameworks interface to structure this PI. Goeschel et al. (2012) specified the program

logic model as a consistent structure to design and evaluate quality and patient safety improvement programs. Goeschel et al. also specified the parameters for systematizing a formative evaluation as inputs, activities, outputs, objectives, results, and goals.

Formative Evaluation Methods

The purpose of this PI is to conduct a formative evaluation of the Crucial Conversations™ program at a major medical center, using secondary data analysis. Results have the potential for providing a structure for evaluating the effectiveness of program implementation, as well as identifying useful metrics for central line infections in adult ICUs. To carry out this formative program evaluation, the following approach will be used to examine the fidelity of the medical center's program implementation of the VitalSmarts® Crucial Conversations™. Four aims are identified, and Aims 1, 2, 3 and 4 have multiple objectives identified for meeting the aims.

This PI proposes the following cardinal intentions in performing a formative program evaluation. First, develop a program logic model of the VitalSmarts® Crucial Conversations™ general program. Second, develop a program logic model to describe the major medical center's historic implementation of Crucial Conversations™ general program theory. Third, develop a program logic model focused on a clinical exemplar that integrates VitalSmarts® Crucial Conversations™ general program theory with an archetype CLABSI program logic model. Finally, compare the three program logic models to determine the fidelity of the major medical center to the VitalSmarts® Crucial Conversations™ general program and the clinical program logic model exemplar to the VitalSmarts® Crucial Conversations™ general program logic model.

Aim 1

The first goal for this PI is to construct a logic model of the VitalSmarts® Crucial Conversations™ program from the literature by identifying the program theory in terms of inputs, activities, output, linking constructs, and outcomes

This PI proposes following objectives using the planned sources to accomplish this aim:

1. Describe the Crucial Conversations™ program theory generally and specifically for health care. (Source: VitalSmarts® literature).

2. Describe the program goals for health care (Source: Maxfield, 2011)

3. Describe the Crucial Conversations™ training (Source: VitalSmarts® literature)

4. Analyze the Crucial Conversations™ curriculum for inputs, activities, outputs, and outcomes (Source: VitalSmarts® Crucial Conversations™ Training Curriculum)

Aim 2

The second goal is describe the medical center's historical implementation of the VitalSmarts® Crucial Conversations™ program, including program objective, training, other activities and outcome metrics and results expressed as a logic model.

This PI proposes following objectives using the planned sources to accomplish this aim:

1. Describe the impetus for initiating the VitalSmarts® Crucial Conversations™ program. (Source: Employee Development Training Plan)

2. Describe the historical overall training goals. (Source: Initial Program Training Plan)

3. Describe the training program. (Source: Employee Development Training Plan)

4. Identify the number and type of employees by percentage trained and proposed to be trained in Crucial Conversations™ (Source: employee development reports).

5. Describe the approach to monitoring and measuring the activities and outcomes related to the impetus for initiating Crucial Conversations™. (Source: Initial Program Training Plan)

6. Describe additional activities and outcomes related to Crucial Conversations™, including monitoring and measurement. (Source: Current Program Training Plan)

Aim 3

The third goal is to develop a program logic model illustrating integrating the VitalSmarts® Crucial Conversations™ program within an established patient safety and quality framework as a clinical exemplar demonstrating reducing hospital acquired central line associated blood stream infections at the medical center.

This PI proposes following objectives using the planned sources to accomplish this aim:

1. Describe the medical center's current central line training conventions, privileging practices, standard operating procedures, and metrics. (Source: Medical Center's central line training manuals, central line canalization privileging guidelines, central line standard operating procedures, employee training and development reports, patient safety and quality reports.)

2. Describe central line canalization evidence best practices (Source: literature)

3. Describe an exemplar quality improvement program for central line associated – blood stream infections (CLABSI), using a program logic model. (Source: literature)

4. Develop a formative program evaluation integrating the logic model developed in Aim 1, and an exemplar CLABSI quality improvement framework. (Source, VitalSmarts, Maxfield 2005, Maxfield, 2011, Pronovost, 2009)

Aim 4

The fourth goal is to conclude the formative program evaluation, comparing logic models from Aims 1 through 3 in order to determine the fidelity of the medical center implementation of the VitalSmarts® Crucial Conversations™ program.

This PI proposes following objectives using the planned sources to accomplish this aim:

1. Compare logic model from Aim 1 with Aim 2.

2. Compare the logic model from Aim 1 to Aim 3.

3. Determine the fidelity of implementation historically and potentially with a clinical exemplar.

Protection of Human Subjects

This PI proposal was submitted to the human subjects review process identified by the University Of Arizona College Of Nursing and the University of Arizona Human Subjects Protection Program.

CHAPTER 3: RESULTS

The purpose of Chapter 3 is to report results of the VitalSmarts® Crucial

Conversations™ formative program evaluation. Results are presented consecutively, beginning

with Aim 1 and ending with Aim 4. Aim 1 results begin by presenting a program logic model

that depicts program elements required for the VitalSmarts® Crucial Conversations™ general

program theory. Chapter 3 continues with Aim 2, reporting results of the historic Crucial

Conversations™ theory training program implemented within a major medical center in the

southern United States. Aim 3 presents a program logic model describing VitalSmarts® Crucial

Conversations™ program theory as a clinical exemplar for an established patient safety and

quality issue — central line associated blood stream infections (CLABSI) experience at the

major medical center. Aim 4 completes Chapter 3 by rendering a program logic model

demonstrating the major medical center's overall fidelity to VitalSmarts® Crucial

Conversations™ general program logic model. To demonstrate fidelity, the program logic model

in Aim 2 is compared to Aim 1 and Aim 3.

Aim 1: VitalSmarts® Crucial Conversations™ General Program Logic Model

Aim 1 presents a program logic model of the VitalSmarts® Crucial Conversations™

program. Results for Aim 1 are based on the literature. The program logic model identifies the

program theory in terms of inputs, activities, output, linking constructs, and short-term goals

(outcomes) and long-term goals (outcomes). Specific literature reviewed included the

VitalSmarts® Crucial Conversations™ classic books, peer reviewed articles, and VitalSmarts®

marketing materials. Literature sources for logic model elements identify these specific literature

sources (Table 1).

TABLE 1: Literature Sources for Logic Model Elements

Logic Model Element	Source(s)
Program Objective	Gardner (2010), VitalSmarts (2013)
Inputs	VitalSmarts (n.d.), VitalSmarts (2012), Patterson, Grenny, McMillan, & Switzler, (2011)
Components	Patterson, Grenny, McMillan, & Switzler, (2011); VitalSmarts (2012)
Implementation Objectives	VitalSmarts (2013); Maxfield (2011)
Outputs	Greeny (2009); Patterson, Grenny, McMillan, & Switzler, (2011).
Linking Constructs	VitalSmarts (2013)
Short Term Goals	Greeny (2009); Patterson, Grenny, McMillan, & Switzler, (2011). VitalSmarts (2013)
Long Term Goals	VitalSmarts (2013)

VitalSmarts® LC, is a private limited company founded in 1990 by Kerry J. Patterson, Joseph W. Grenny, Ron G. McMillan and Al W. Switzler (Gardner, 2010). The literature described VitalSmarts® as a corporation specializing in communication skills consultation and training, with customers extending from individuals seeking self-help improvement to the largest corporations seeking organizational performance improvements (Bloomberg News, 2013; Gardner, 2010). VitalSmarts® described their products: "Based on more than 30 years of research, VitalSmarts®' training solutions teach strategies and skills for driving rapid, sustainable and measurable behavior change that leads to improvements in engagement, quality, productivity, safety and other key performance indicators" (VitalSmarts, 2011, para. 1). VitalSmarts (2013) stated that four specific areas of training are available: VitalSmarts® Crucial Conversations™; Crucial Confrontations™; Influencer™, and, Change Anything Training™. VitalSmarts (2013) reported that leadership training is provided in scheduled workshops as well as onsite corporate training. VitalSmarts® Crucial Conversations™ training is a product provided by VitalSmarts® specifically to: train management and employees to engage

meaningfully in high stakes, highly emotional dialogues, where opinions and understanding greatly differ resulting in increased collaboration, consequential solutions to tough issues, and improved overall company performance (VitalSmarts, n.d.).

VitalSmarts® Crucial Conversations™ general training program logic model presents the VitalSmarts® Crucial Conversations™ program logic model developed from VitalSmarts® Crucial Conversations™ literature. This is a general program logic model, meaning it is applicable to all organizations, not just specific to health care. In addition, the intent of Vital Smarts® Crucial Conversation™ program was to provide an organizational-wide training program, and not exclusively training select employees (Table 2).

TABLE 2: VitalSmarts® Crucial Conversations™ General Training Program Logic Model

Program Objective: Train management and employees to engage meaningfully in high stakes, highly emotional dialogues, where opinions and understanding greatly differ resulting in increased collaboration, consequential solutions to tough issues, and improved overall company performance within one year as measured by qualitative surveys reporting VitalSmarts® Crucial Conversations™ occurrences.						
Implementation				**Intended Outcomes**		
Inputs	**Components**	**Implementation Objective**	**Outputs**	**Linking Constructs**	**Shorter Term**	**Longer Term**
All Employees and Management Personnel	VitalSmarts® Crucial Conversations™ Training Surveying VitalSmarts® Crucial Conversations™	To train all employees and management proficiency to engage in VitalSmarts® Crucial Conversations™ To use a standard survey to assess the impact of VitalSmarts® Crucial Conversations™ on organizational issues.	Number of employees trained/ number of employees Number of Managers trained /Total Number of Managers Number of Surveys returned.	Number of effective VitalSmarts® Crucial Conversations™ Reported	**Outcome Indicator:** VitalSmarts® Crucial Conversations™ Reports of High Confidence of Success; with High Stakes Conversations regarding important company sectors/areas of interest. **Primary measurement**: Self-Reported VitalSmarts® Crucial Conversations™ Survey *Accounts*	**Outcome Indicators:** VitalSmarts® Crucial Conversations™ Reports of High Confidence of Success; with High Stakes Conversations regarding important company sectors/areas of interest. Long Term Company Metrics Improvement correlates with VitalSmarts® Crucial Conversations™ self-reporting. **Primary measurement**: VitalSmarts® Impact Cloud™ **Secondary measurement:** Executive Metrics:
Director of Employee Development						
$1195~ per student						
Training Materials Workbook Video Clips Cue cards Book VitalSmarts® Crucial Conversations™: *Tools for Talking When Stakes are High* (2nd eds), the audio companion.						

Program Theory

To add to the program logic model results, the VitalSmarts® Crucial Conversations™ general program theory is informed by logic model theory and the following theoretical frameworks. This is important to results because the basic program logic model is based on logic and not causation (Knowlton & Phillips, 2013; McDavid & Hawthorn, 2006). Mohr (1982) described organizational behaviors in terms of process theory that links inputs to defined outcomes dependent on variation and state of the context. This structures the results for the VitalSmarts® Crucial Conversations™ general program logic model.

The substantive theories used as a basis for demonstrating communication theory within the VitalSmarts® Crucial Conversations™ general program logic model are established by Patterson et al. (2011b). Patterson et al. (2011b) specifically describe conversational techniques that avoid disruptive behavior related to confrontational issues encompassing opposing opinions, heightened emotions, and great risks, which are independently supported by Smolka et al. (2005).

Smolka et al. (2005) proposed that emotional reactions to stress result from neural stimulation caused by catecholamines released during periods of stress. These concepts demonstrate the foundations for the general program theory behind VitalSmarts® Crucial Conversations™. Patterson et al. (2011b) is based on research connecting emotional confrontations with high stakes issues that can escalate into disruptive behaviors because of the human stress reaction to catecholamines. Patterson et al. (2011b) linked Smolka et al.'s concept of high-stakes emotional confrontation to communication. Patterson et al. (2011b) identified the importance of recognizing conversations that risk escalating emotions into disruptive behaviors. Secondly, Patterson et al. (2011b) described recognizing one's own paths and vulnerabilities for

disruptive behaviors. Lastly, Patterson et al. (2011b) focused on retraining the individual to engage on a profound and productive dialogue centered on shared meaning connecting chasms in opinions reduces the risks of escalation to disruptive behaviors. These three processes provide a theoretical foundation for the concepts

Program Logic Model Elements

To add supportive detail to the program logic model results, the VitalSmarts® Crucial Conversations™ general program logic model logically arranges program model elements for evaluating and comparing observed outcomes to intended objectives as a program evaluation. McDavid and Hawthorn (2006) described the program logic model as a framework that arranges individual program elements into two major areas, program implementation and program intended outcomes. McDavid and Hawthorn continued to define the program implementation elements describing the observed behavior as with what resources are grouped by purposes and what is accomplishing what. McDavid and Hawthorn also described the program's intended outcomes defining the program's short term and long term goals isolated from the program's implementation. McDavid and Hawthorn defined the *linking construct*, which is the program element connecting the program implementation elements with the program's intended outcomes. The program logic model provides the structure for depicting the program theory, as well as for program evaluation through analyzing and comparing observed program behaviors and the intended program goals (McDavid & Hawthorn, 2006).

Program Objective

The VitalSmarts® goal is to train individuals in leadership, and in particular communication theory (VitalSmarts, 2013). The specific VitalSmarts® Crucial Conversations™ program objective is to train management and employees to engage meaningfully in high stakes,

highly emotional dialogues (VitalSmarts, n.d.). According to McDavid and Hawthorn (2006), the

five elements of the VitalSmarts® Crucial Conversations™ general program objective are:

1) Details a target population or domain affected by the program (management and

    employees)

2) Specify the direction of the intended effects, (improved overall company

    performance)

3) Enumerate the significance for intended effects (consequential solutions to tough

    issues)

4) Denote a timeframe for the intended results (one year)

5) Identify outcomes should be measurable (measured by quantitative/qualitative

    surveys reporting VitalSmarts® Crucial Conversations™ occurrences).

Program Implementation

The program implementation describes observed behavior broken into inputs and outputs.

McDavid and Hawthorn (2006) characterized the program inputs as the "resources required to

operate the program" (p. 47). McDavid and Hawthorn (2006) further described these resources

specifically such as people, materials, infrastructure, and/or defined abstractly capitalized as

assets and costs. The program logic model defines employees and managers, the director of

employee development, the dollars required for training, and the training materials all as inputs

into the program.

The program component, or activity, classifies inputs into specific events or actions with

distinctly measurable outputs. Collectively, program components connect a cluster of program

inputs with the actions and objectives leading to the activities' outputs (McDavid & Hawthorn,

2006). VitalSmarts® Crucial Conversations™ general program logic model defines two program

components. One program component is the activities grouping employees, managers, funds for training, and training materials with VitalSmarts® Crucial Conversations™ training. Another program component is the activities grouping the Director of employee development and VitalSmarts® Crucial Conversations™ surveys with surveying employee and managers accounting for occurrences of VitalSmarts® Crucial Conversations™.

The implementation objectives define the activity as described by full infinitive verbs (McDavid & Hawthorn, 2006), examples being "to deliver" and "to use." Implementation objectives also identify measurement metrics of observed efficacy described in the implementation objective as countable yields. In the VitalSmarts® Crucial Conversations™ program logic model, the implementation objectives are to train all individuals in proficiency in VitalSmarts® Crucial Conversations™, and to use standard surveys assessing the impact of VitalSmarts® Crucial Conversations™

Program Outcomes

The program elements linking constructs, short term goals, long term goals, and, the overall program objective form the program intended outcomes. These elements form the basis for comparing the program observed behaviors and the intended program goals. The linking construct is the connector bridging the actual implementation outputs and the intended program purpose.

The linking construct connects the implementation objectives for training managers and employees to effectively engage in VitalSmarts® Crucial Conversations™, applying the training by engaging, evaluating, and reporting VitalSmarts® Crucial Conversations™, and finally, achieve short term as well as long term intended outcomes by resolving significant issues lingering in critical areas of importance.

The VitalSmarts® Crucial Conversations™ general training program promotes the use of surveys signifying the occurrence of VitalSmarts® Crucial Conversations™, the subject areas, and success levels as short term goals. The long term goals emphasize connecting conversations with long term company goals (VitalSmarts, 2013). VitalSmarts (n.d.) describes the connection between implementation and outcomes as people applying VitalSmarts® Crucial Conversations™ to issues affecting areas of importance. VitalSmarts (n.d.) depicts this process by measuring outcomes through the Impact Cloud™. The Impact Cloud™ is a proprietary tool provided by VitalSmarts® that enables program leaders to measure training outcomes as applied to organizational goals.

Program Efficacy

VitalSmarts (2013) suggested that analyzing employee survey results is how program efficacy is determined. The Impact Cloud™ provides a means to sort and measure outcome data connecting VitalSmarts® Crucial Conversations™ to organizational goals. Utilization of the Impact Cloud™ tool requires program leaders to create employee surveys and translate the outcomes or goals into employee results structured within the Impact Cloud™ (VitalSmarts, 2013). The Impact Cloud provides visualization evaluating individual Crucial Conversation™ experiences as applied to the organization's goals. These surveys are categorized into event, relationship and subject matter (VitalSmarts, 2013).

VitalSmarts (n.d.) further described these categories for sorting results as: the event as defined in terms of importance from 'not high stakes' to 'extremely high stakes'; the relationship; and, degrees of confidence the issue is resolved in a spectrum from 'not at all confident' to 'extremely confident'. The relationship can be customized into categories such as manager, peer, customer, and/or direct report. Subject matter categories can be customized and

examples provided by VitalSmarts (n.d.) are "Teamwork, Cost Control, Safety, Productivity, Employee Engagement, [and] Quality" (p. 4). Organizational leaders with online access to the tool can input survey results and determine the intersection of these four factors. Optimum results are extremely high stakes conversations with users being extremely confident of resolution in areas of importance to the organization.

VitalSmarts® Crucial Conversations™ General Program Logic Model Summary

Results for the VitalSmarts® Crucial Conversations™ General Program Logic Model are presented in Table 2. Concepts for a formal, comprehensive organization-wide program implementations consist of employees and managers engaging in VitalSmarts® Crucial Conversations™ training collectively with an immediate implementation objective of assessing numbers trained and evaluating the application of VitalSmarts® Crucial Conversations™ within the organization (Grenny, 2009; VitalSmarts, 2013;). This program differs from focused individual self-improvement training that VitalSmarts® also offers (VitalSmarts, 2013). The specific implementation goals for an organizational deployment are described as training managers and employees to engage in VitalSmarts® Crucial Conversations™ and applying VitalSmarts® Crucial Conversations™ theory and training to areas of importance within the organization. VitalSmarts (n.d.) utilizes VitalSmarts® Crucial Conversations™ theory concepts to actualize organizational outcomes through the Impact Cloud™, the tool designed to track outcomes.

Training Curriculum

The VitalSmarts® Crucial Conversations™ training process puts implementation elements into a learning operation as described in Table 3. The VitalSmarts® Crucial Conversations™ training program consists of training employees and managers to engage in

highly emotional and high stakes confrontations where opinions differ greatly. Classes consist of

a two-day seminar that can take place on site or at multiple scheduled venues throughout the

United States. Costs start at $1195 per person with discounts negotiated for groups of three or

more (VitalSmarts, 2013).

Training introduces 60 video clips that provide examples of highly emotional, highly

contentious and highly important conversations, supplementing material with instructor led

learning and discussion. The video clips contrast models demonstrating disruptive behaviors with

VitalSmarts® Crucial Conversations™ exemplars. Also, trainees are asked to bring their own

personal examples of highly emotional, high stakes confrontations for in-class practice, group

participation, and self-reflection (VitalSmarts, n.d.) This training methodology is applied in nine

lessons. VitalSmarts (n.d.) stated that this training consists of nine lessons as illustrated in the

Formal VitalSmarts® Crucial Conversations™ training syllabus (Table 3).

TABLE 3: Formal VitalSmarts® Crucial Conversations™ Training Syllabus

Lesson # and Theme	Time Allocated	Fundamental Lesson Objective
Lesson 1: Get Unstuck	90 minutes	Define a crucial conversation and the disruptive behaviors of silence and violence, share opinions openly and straightforwardly
Lesson 2: Start with the Heart	75 minutes	Recognizing one's own style under stress; and controlling one's reactions and behaviors
Lesson 3: Master My Stories	120 minutes	Learning to think through one's own emotions of being hurt, scared, or angry – eliminate "victim, villain, and helpless stories"
Lesson 4: State My Path	150 minutes	Learning to speak convincingly without insensitivity and harshness
Lesson 5 Learn to Look	90 minutes	Spotting impending disruptive and even violent behaviors
Lesson 6: Make it Safe I	120 minutes	Returning to dialogue and making a situation safe
Lesson 7: Make it Safe II	60 minutes	Ensuring mutual respect
Lesson 8: Explore Others' Paths	180 minutes	Making it safe for others to contribute, and addressing others disruptive behaviors
Lesson 9: Move to Action:	60 minutes	Applying VitalSmarts® Crucial Conversations™ to real world situations and achieving results

(*VitalSmarts, 2013*)

Lesson One focuses on describing and defining high stakes, high emotional situations where conflict is likely to occur because of differences in opinions. Lessons Two, Three and Four examine the premise that one can control one's reactions to emotional conflict. The concept of self-control greatly influences the directions taken in VitalSmarts® Crucial Conversations™ to either diffuse disagreement or further escalate emotional reactions. Lessons Five, Six, Seven and Eight emphasize detecting situations and behaviors leading to disruptive, even violent behaviors. These lessons build a toolset to avoid and diffuse these types of emotional confrontations from escalating into physical violence by enabling a safe environment for open dialogue. Lesson Nine provides the environment for students to practice real situations they have encountered in the past, and add to their tool set for future situations using all the lessons learned

(VitalSmarts, n.d.). VitalSmarts (2013) proposed that each conversation is a learning cycle using the toolset gained in the VitalSmarts® Crucial Conversations™ general training program.

VitalSmarts (n.d.) published a list of materials used in the formal course: a workbook, cue cards modeling suggested behaviors for situations, *Crucial Conversations: Tools for Talking When Stakes are High* (2nd ed.), and the audio companion. Participants receive a certificate of completion that is required for further advanced studies provided by VitalSmarts®.

Results have described the VitalSmarts® Crucial Conversations™ general program logic model, as well as the curriculum for an organizational training. This curriculum has been applied specifically to health care.

Results for Health Care

VitalSmarts® Crucial Conversations™ is a program for all types of organizations, including health care. As addressed by Maxfield et al. (2005), however, the VitalSmarts® Crucial Conversations™ program is too general for the issues facing health care. Maxfield et al. found missing elements in the program for healthcare in applying the VitalSmarts® Crucial Conversations™ program logic model elements to health care. Maxfield et al. therefore extended the VitalSmarts® Crucial Conversation™ general model and named this program the Seven Crucial Conversations for Healthcare™. Maxfield et al. proposed; "Broken Rules; Mistakes; Lack of Support; Incompetence; Poor Teamwork; Disrespect; and Micromanagement" (p. 3) are the negative organizational factors related to increased preventable medical errors. Maxfield et al. also proposed additional program elements that include: characterizing explicit disruptive behaviors intrinsic to the health care environment requiring unique dialogue, recognizing seven very specific and identifiable high-stakes, highly emotional confrontational issues related to patient safety and quality; and, Maxfield et al. made very detailed recommendations regarding

the program activities and outputs that shift the foci of VitalSmarts® Crucial Conversations™ from conversations about all issues to Maxfield et al. proposed focus on specific organizational factors and cultural barriers preventing the Seven Crucial Conversations for Healthcare™.

Maxfield et al. (2005) further proposed that silence is a particular behavior that endangers patients and jeopardizes quality and safety. For example, health care workers, predominantly nurses, might note a medical error in progress and remain silent due to fear of retaliation or adverse action. Therefore, Maxfield et al. suggested that the initial crux of program activities and outputs beyond VitalSmarts® Crucial Conversations™ training should focus on VitalSmarts® Crucial Conversations™ directed to identify and remove cultural barriers preventing health care workers from professionally asserting themselves. Maxfield et al. recommended program components for removing cultural barriers that centered on creating focus groups consisting of representatives from the major health care professions trained in VitalSmarts® Crucial Conversations™ with the teams led by senior management. Lastly Maxfield et al. suggested the use of quantitative and qualitative surveys to ascertain the occurrence and degree of Crucial Conversations™ within healthcare.

Aim 1 Summary

Aim 1 reported the results from a formative program evaluation of the VitalSmarts® Crucial Conversations™ general program logic model using the literature to construct the program logic model. Aim 1 also reported Maxfield et al. (2005) applying Crucial Conversations™ theory to healthcare.

Aim 2: Major Medical Center Historical Crucial Conversations™ Program Logic Model

Aim 2 describes a major medical center's historical implementation of a Crucial Conversations™ program as a logic model, including program objective, training and other

activities, outcome metrics and results. Aim 2 results were achieved by interviewing the Chief

Research Officer [CRO] to gather historical data for implementing the Crucial Conversations™

program. The CRO also enabled access to the Director of Employee Development who provided

specific training data for the medical center. Specifically, the CRO was interviewed in person

four times for one hour each session. In addition, data were also collected through sixteen email

exchanges. The CRO was asked the following questions about the Crucial Conversations™

program, as implemented at the major medical center:

- What was the impetus for developing and implementing a VitalSmarts® Crucial

  Conversations™ program?

- What was the overall program objective? How was the program funded?

- Who led the program?

- When did the program first start?

- Is there a formal training plan?

- What are the program inputs?

  - Who are the program sponsors, leaders, and supporting staff?

  - Who does the training?

  - What are training objectives?

  - What are the course materials?

  - Is there a formal syllabus?

- What are program outputs?

  - Who was trained?

  - What functions did trainees have in the organization?

- What are the program objectives in terms of short term and long term program outcomes?

  o How are these outcomes measured?

  o What percentage of managers has been trained?

  o Over what period of time were managers trained? Are all managers current in training?

  o How were action and fidelity measured?

- What has happened since inception?

In response to these questions, the results follow in Table 4. The VitalSmarts® Crucial Conversations™ program was initiated by the major medical center DED as the result of a training policy change. Under a preview for orientation, the DED changed the training policy by including additional training during orientation to introduce newly hired supervisors, managers, and directors to Crucial Conversations™ theory. The CRO explained that the major medical center's culture demonstrates a safe place to work, an environment that values patient-centered care and professionalism. The DED described management as the source for problem-solving related to conflicts and disruptive behavior. The major medical center's program logic model organizes the data provided by the major medical center's CRO, and indirectly from the DED, as the program elements: program objective; inputs; components; implementation objectives; outputs; linking constructs; and, short-term and long-term goals.

A formal training plan was not available for deriving program elements. Multiple interviews and email exchanges between the CRO and DED contributed to defining program elements and the major medical center's program logic through an iterative process of dialogue.

TABLE 4. A Major Medical Center's Historical Crucial Conversations™ Theory Training Program

Program Objective: Train newly hired management to increase the number of meaningful high-stakes, highly emotional dialogues, where opinions and understanding greatly differ resulting in increased collaboration evidence in employee surveys, increased numbers of consequential solutions to tough issues, and improved overall company performance within the next 5 years.						
Implementation				Intended Outcomes		
Inputs	Components	Implementation Objective	Outputs	Linking Constructs	Shorter Term	Longer Term
All New Supervisors, Managers, and Directors Personnel	Crucial Conversations™ Training	To train all supervisors and management proficiency to engage in VitalSmarts® Crucial Conversations™	Number of Supervisors, Managers and directors trained	Number of reportable employee incidents	**Outcome Indicator:** Decreased numbers of unresolved issues **Primary measurement**: Numbers of unresolved issues reported to executives	**Outcome Indicators: Executive Performance Reports** **Primary measurement**: NOT ADDRESSED **Secondary measurement:** Number of Employee Incidents
Director of Employee Development						
Crucial Conversations Skills™ (Patterson, Grenny, McMillan, and Switzler 2011). Handouts						

Program Impetus

The DED explained to the CRO that the impetus for implementing Crucial Conversations™ theory began in 2008 after reading the first edition of the book *Crucial Conversations: Tools for Talking when the Stakes are High* (Patterson et al, 2011), and later attending a workshop held by VitalSmarts®. The DED deemed the information applicable to the medical center and conceived the notion to attempt a medical center wide roll out.

The DED identified the main program training goal as reducing barriers for open dialogue and enabling management and senior management to effectively address serious issues

confronting the medical center without prompting disruptive behaviors. The immediate program goal was to expose management, director, and vice-presidential level leadership to Crucial Conversations™ theory.

The DED explained that three factors weighed in this decision at the time: Reports of disruptive behaviors occurring during management to employee discussions; physician to nursing staff confrontations and escalating disruptive behaviors; and it was suspected that there were organizational obstacles preventing reporting safety incidents and compliance issues. The major medical center CRO indicated that the DED's director also agreed with this assessment, and that the main dynamic for initiating the program was DED and the DED director's perception that management and senior management needed additional tools and development for addressing these issues. The DED reported that Crucial Conversation™ theory offered a feasible path toward improvement.

Current Training Program

The DED elucidated that the major medical center's implementation of Crucial Conversations™ theory consisted of a four-hour introductory course during the initial orientation process. The training materials provided an edition of the book *Crucial Conversations: Tools for Talking when the Stakes are High* (Patterson et al., 2011), and handouts summarizing key points of the book – controlling one's own emotions, contributing to shared meaning, and recognizing and addressing disruptive behaviors. These handouts also guided participants through hypothetical situations highly likely to escalate into a high-stakes, highly emotional confrontation.

Current Trainees

Table 5 reports the number of employees by employee category trained in classes held

between April 2009 and August 2013. In addition, the DED noted that non-supervisory

employees were not required to attend training but that approximately 45 employees volunteered

to attend the Crucial Conversations™ theory classes during orientation. The DED also reported

that some unknown number, but thought to be less than four employees attended formal

VitalSmarts® Crucial Conversations™ general training locally. The percentages trained in

Crucial Conversations™ program theory are as of 2013. The DED reported that the major

medical center has not tracked the training program trend data over the historical period.

TABLE 5: The Major Medical Center's Employees Trained in Crucial Conversations™ Theory

Employee Level	Number Trained (2009 – 2013)	2013 Employee Census	Percentage Trained as of 2013 Employee Census (2009 – 2013 Trainee Turnover is Unknown)
Vice-President	1	14	7%
Director	2	120	1.6%
Supervisor	29	174	15%
Staff/non-supervisory	45	5466	0.8%

Table 6 illustrates the historical distribution of executive, senior management, and

management employees over the major medical center's historical Crucial Conversations™

theory training program period. The DED reports that it is not known within the year to year data

the employees trained, or if trained employees terminated employment.

TABLE 6. The Major Medical Center's Historical Employment by Employee Type

Employee Level	2009 CY Census	2010 CY Census	2011 CY Census	2012 CY Census	2013 CY Census
VP	14	13	11	13	14
DIR	106	108	111	118	120
MGR/SUPV	165	168	176	181	174
ALL OTHERS	4908	5013	5160	5366	5466
TOTAL	5193	5312	5458	5678	5774

Aim 2 Summary

Aim 2 reported a major medical center's historical implementation of training Crucial

Conversations™ theory as a program logic model, including program objective, training and

other activities, outcome metrics and results. Results were achieved by collecting the data

derived from interviews and email exchanges with the major medical center's CRO, including

sharing drafts categorizing program elements into a program logic model.

Aim 3: Program Logic Model with a Clinical Exemplar

The purpose of Aim 3 was to develop a program logic model illustrating integration of

the VitalSmarts® Crucial Conversations™ general program logic model within an established

patient safety and quality framework as a clinical exemplar. The clinical exemplar selected was

CLABSI, a generic patient quality and safety issue for critical care units including the major

medical center.

The result for Aim 3 is a program logic model based on the following sources: One

source describes the major medical center's current central line training conventions, privileging

practices, standard operating procedures, and metrics based on interviews, electronic

communication and policies. The second source describes current evidence based practices for

central line canalization procedures by the Society of Anesthesiology Anesthesiologists Task

Force on Central Venous Access et al, (2012). The third source is the VitalSmarts® Crucial

Conversations™ general program theory. The fourth source is an archetype CLABSI program

logic model (Goeschel et al, 2012) (Figure 2). The sources are integrated into an exemplar

program logic model demonstrating Crucial Conversations™ theory applied to addressing

CLABSI program logic model focused on detecting, correcting, reporting and eliminating

preventable errors.

Major Medical Center's Current Central Line Practices

The results depicted in Table 7 describes an examination of evidence based practices for central venous line catheterization based on Moureau et al. (2013) and American Society of Anesthesiologists Task Force on Central Venous Access et al. (2012); including, an assessment of the major medical center's experience with central venous line catheterization evidence based practices. The results are categorized along established essential concepts.

The data for the medical center's venous central line placement training and best practices originates from four interviews, thirteen email exchanges, and a review of the medical center's protocols and policies with the medical center's CRO. The best practices and policies on record at the medical center include polices referencing CDC (2002; 2011b), Institute for Healthcare Improvement (n.d.), infection control policy, infection control training polices, central line practices for prevention of central line infections protocols, central line insertion checklist, guidelines for central line catheter dressing changes, central line therapy protocols, central line access protocols, tunneled central line catheter protocols, and central line guidelines for use of fibrinolysis agents. An extraction of results from two peer-reviewed meta-analyses, American Society of Anesthesiologists Task Force on Central Venous Access et al. (2012) and Moureau et al. (2013), established the baseline venous central line catheter best evidence practices for Aim 3. Goeschel et al. (2012) provided the frameworks for an archetype CLABSI prevention program.

TABLE 7. Established Venous Central Line Practices and Major Medical Center's Experience

Practice (Moureau et al., 2013; American Society of Anesthesiologists Task Force on Central Venous Access et al, 2012)	Major Medical Center's Experience
Preparation	
Environment promotes aseptic Technique	Medical Center policies demonstrate adherence to aseptic techniques including the environment for catheter placement. All medical and nursing personnel are trained and tested for competency according to the Duke Infection Control Outreach Network standards
Use standardized equipment set	Medical Center uses standard central line equipment bundles enclosed in sterile plastic bag.
Use of an assistant for canalization	Medical Center uses a trained assistant that manages a standardized checklist as well as provides physical assistance as per the standardized checklist to assist central line procedures The licensed independent practitioner, including mid-level providers and health care personnel have the authority to stop or re-direct the procedure.
use of standard checklists /protocols for both insertion and maintenance of central line	Medical center utilizes multiple check
Prevention of Complications	
Selection of Chlorhexidine antiseptic solution	Medical Center has a specific policy to prepare the insertion site with chorhexdine gluconate prep applicator as per manufacturer instructions.
Use of maximal barrier precautions	Medical Center uses specific infection control policies and procedures that health care personnel wear a mask and employ standard precautions. Those directly involved with the insertion of a venous catheter must wear a sterile gown and gloves along with a mask.
Site Selection Criteria (Avoid Femoral)	Medical Center's infection control policy dictates subclavian vein site with femoral site as a last resort. Any sites used for central lines besides a subclavian vein insertion requires specific documentation in the operating procedure report and medical record.
Catheter Maintenance – Duration, Inspection, Removal when not medically necessary	Maintenance Protocol Bundle checklist provides guidelines for removing central lines once the line is no longer medically necessary, and to remove any line suspected of infection. The bundle specifies the procedure for and use of CathFlo regarding coagulation obstructions.
Removal & New Insertion site for suspected CLA-infections	Medical Center protocols require the removal and insertion at a new site if the central line is of medical necessity
Use of Aseptic Technique accessing Central Lines	Medical Center protocols document training personnel on aseptic technique
Prevention of Injury	
Selection of Catheter Site	Medical Center protocols specify the subclavian vein site with femoral site as a last resort
Positioning of Patient for catheterization	Medical Center documents best practices for positioning the patient for both insertion and maintenance of central lines.
Needle Insertion and catheter placement procedures	Medical Center does not document a specific protocol for catheter placement .
Use of Ultrasound, fluoroscopy, transesophageal echocardiogram, electrocardiogram for monitoring catheter placement	The major medical center does not specify the use of ultrasound, fluoroscopy, transesophageal echocardiogram, electrocardiogram for monitoring catheter placement. The Medical Center's protocols specify using X-rays to confirm placement.

Major Medical Center's Central Line Historical Data

Table 8 reports the number of CLABSI related infections over the medical centers

historical training period, the total device days of central line infection exposure, and the rate of

CLABSI per 1000 device days. The major medical center experienced an improving trend from 2.19 CLABSI related infections per 1000 device days in calendar year 2009, to 1.92 CLABSI related infections per 1000 device days in calendar year 2012. During the first nine months of calendar year 2013 the major medical center experienced a CLABSI rate of 1.75 CLABSI's per 1000 device days.

TABLE 8. Major Medical Center's Central Line Historical Data

CA-BSI/1000 Central Line Device Days	CY09	CY10	CY11	CY12	CY13 to Sep
CLA-BSI	16	16	15	15	12
DEVICE DAYS	7306	7201	7720	7805	6839
RATE/1000 DEVICE DAYS	2.19	2.22	1.94	1.92	1.75

Current Evidence-Based Practices for Central Line Canalization Procedures

Moureau et al., (2013) proposed evidence based practices for training providers regarding venous central line procedures. Moureau et al. suggested that insertion and management are two distinct areas of training foci. Moureau et al. also delineated specific categories grouping training modules; anatomy and physiology regarding venous and associated structures; ultrasound guidance to identify structures; "high blood flow, parallel positioning to the vessel, and pulsatility of blood flow" (p. 349), as indicators of proper tip placement; specific training around infection focusing on the "three main sources of infection contamination: the catheter–skin junction (extraluminal), the needleless connector and hub (intraluminal), and iatrogenic contamination" (p. 349); and, the use of anatomical models in training.

The American Society of Anesthesiologists Task Force on Central Venous Access et al. (2012) proposed areas for patient safety and quality of care regarding central venous canalization procedures. Three main areas were identified: preparation; prevention of complications; and prevention of injury.

CLABSI Exemplar Logic Model Sources

Table 9 provides a list of specific sources categorized by program logic elements. The

data gathered from these sources are further organized into an exemplar program logic model.

This model integrates Maxfield et al. (2005) recommendations for a healthcare specific

implementation of Crucial Conversations™ program theory with a general requirement of team

training specified by Goeschel et al. (2012), and the overall program logic model as described by

Goeschel et al.

TABLE 9. Exemplar CLABSI Program Logic Model Elements and Sources

Logic Model Element	Source(s)
Program Objective	Goeschel, Weiss, & Pronovost, (2012). Pronovost (2006), Maxfield (2005)
Inputs	VitalSmarts (n.d.), VitalSmarts (2012), Goeschel, Weiss, & Pronovost, (2012), Patterson, Grenny, McMillan, & Switzler, (2011)
Components	Patterson, Grenny, McMillan, & Switzler, (2011); VitalSmarts (2012)
Implementation Objectives	VitalSmarts (2013); Maxfield (2011)
Outputs	Greeny (2009); Patterson, Grenny, McMillan, & Switzler, (2011).
Linking Constructs	VitalSmarts (2013)
Short Term Goals	Greeny (2009); Patterson, Grenny, McMillan, & Switzler, (2011). Maxfield 2005, Maxfield, 2011, Provonost, 2009
Long Term Goals	Goeschel, Weiss, & Pronovost, (2012), Pronovost et al. (2012) Maxfield 2005, Maxfield, 2011, Provonost, 2009,

Program Logic Model Using Literature Based CLABSI Exemplar

Goeschel et al. (2012) provided the archetype for a CLABSI continuous improvement

program with teamwork and open communication as key elements. Maxfield et al. (2005)

proposed a healthcare centric implementation of Crucial Conversations™ theory focusing on

creating focus groups directed by senior management. Table 10 integrates Maxfield et al. (2005)

recommendations as the team training recommended by Goeschel et al. and results in the

program logic model structured according to guidelines recommended by McDavid and

Hawthorn (2006).

TABLE 10. Integrated Clinical Exemplar CLABSI Program Logic Model

Program Objective: "Reduce mortality and length of stay among ICU patients caused by CLABSIs (Goeschel, Weiss, & Pronovost, 2012, p. 332). The program reduces the number of CLABSIs by 66% in 18 months. (Pronovost et al., 2006).						
Implementation				**Intended Outcomes**		
Inputs	**Components**	**Implementation Objective**	**Outputs**	**Linking Constructs**	**Shorter Term**	**Longer Term**
Unit based Team Safety Implementation manual	Form ICU unit teams consisting of Providers, Nursing, infection control and management	Formed Interprofessional Collaborative CLABSI teams i	Numbers of ICU CLABSI Improvement teams formed.	Increased number of effective Increased number of effective team-based continuous safety improvements.	Reduce incidence of CLABSI Reduce rate of CLABSI per 1000 device days	Reduce mortality and length of stay among ICU patients
Executive Team based Safety Implementation Manual	Executive Leadership implements the Executive CLABSI Checklists	Executive level program support	Numbers of Executive team members demonstrating program knowledge and support		**Measure:** CLABSI events Device Days	
Unit and Executive Team Check off Lists	Unit and Executive teams	Teams implement safety, teamwork, and communications tools.	Numbers of Checklists implemented			
Team Safety Training Materials	Team safety science, continuous improvement, and teamwork/communication training	All ICU and Executive Teams complete training	Number of Teams demonstrating safety science, continuous improvement, and teamwork/communication proficiencies			
Team Metrics Tools	Teams create monthly check up assessments	To identify preventable safety errors. To analyze root causes and to develop interventions.	Number of preventable error s identified per month			

TABLE 10. - *Continued*

Program Objective: "Reduce mortality and length of stay among ICU patients caused by CLABSIs (Goeschel, Weiss, & Pronovost, 2012, p. 332). The program reduces the number of CLABSIs by 66% in 18 months. (Pronovost et al., 2006).						
Implementation				**Intended Outcomes**		
Inputs	Components	Implementation Objective	Outputs	Linking Constructs	Shorter Term	Longer Term
Tools for managing meetings and communications **Team Training:** CVICU Staff Trained in VitalSmarts® Crucial Conversations™	Monthly team program reviews and organizational assessments	To share information within the medical center To share successes and challenges outside of the medical center.	Number of meeting minutes. Number of team communications within the medical center Number of communications outside the medical center			
Executive Management Trained in VitalSmarts® Crucial Conversations™		To use Focus groups to Assess obstacles preventing the organization from engaging in the Seven Crucial Conversations™ (Maxfield et al. , 2005, p. 14)	Number of Teams formed Number of Participants total			
Seven VitalSmarts® Crucial Conversations™ Survey (Maxfield, 2005).		To use a standard survey to assess organizational issues. (VitalSmarts, 2005, p. 1),	Number of Surveys returned Number of organizational barriers to open dialogue identified.			

Aim 3 Summary

Aim 3 reported the results of clinical exemplar applying program logic model principles to a serious patient quality and safety issue. Results were informed by a major medical center's central line canalization best practices, current evidence based practices for central line canalization procedures identified by the Society of Anesthesiology Anesthesiologists Task Force on Central Venous Access et al. (2012), the VitalSmarts® Crucial Conversations™ general program theory, a CLABSI archetype program logic model, and a program logic model integrating the VitalSmarts® Crucial Conversations™ general program theory within an established patient safety and quality framework as a program logic model.

Aim 4: Assess Program Fidelity to the VitalSmarts® Crucial Conversations™ General Program Logic Model

Aim 4 concludes the formative program evaluation by comparing logic models from Aims 1 through 3 in order to determine the fidelity of the medical center implementation of the Crucial Conversations™ theory. Tables 11 and 12 report the findings comparing fidelity categorized by program logic model elements. Two comparisons were made. The first comparison was between VitalSmarts® Crucial Conversations™ general program logic model (Aim 1) to major medical center's Crucial Conversations™ theory training program logic model (Aim 2). The second comparison was between VitalSmarts® Crucial Conversations™ general program logic model (Aim 1) to an Exemplar CLABSI Program Logic Model (Aim 3).

First Fidelity Comparison

The first comparison to evaluate fidelity is presented in Table 11. Note that the comparison is between the VitalSmarts® Crucial Conversation™ general program logic model and the major medical center adaptation of the Crucial Conversations™ theory from Patterson et

al. (2011) as a program logic model. The major medical center initiated an employee

improvement program rather than the organization wide implementation recommended by the

VitalSmarts® Crucial Conversation™ general program logic model.

TABLE 11. VitalSmarts® Crucial Conversations™ General Program Logic Model and Major Medical Center's Crucial Conversations™ Theory Training Program Logic Model Fidelity Comparison Matrix

Logic Model Element	VitalSmarts® Crucial Conversations™ General Program (Aim 1 program logic model)	Major Medical Center Crucial Conversations™ Theory Training (Aim 2 program logic model)	Fidelity between VitalSmarts® Crucial Conversations™ Program logic model and Major Medical Center Program Logic Model
Program Objective	Train management and employees to engage meaningfully in high stakes, highly emotional dialogues, where opinions and understanding greatly differ resulting in increased collaboration, consequential solutions to tough issues, and improved overall company performance within one year measured by surveys reporting VitalSmarts® Crucial Conversations™ occurrences and organizational goals as measured by the Impact Cloud™ (VitalSmarts, 2013)	Train newly hired management to engage increase the number of meaningfully in high-meaningful high- stakes, highly emotional dialogues, where opinions and understanding greatly differ resulting in increased collaboration evidenced in employee surveys, increased numbers of consequential solutions to tough issues, and improved overall company performance within the next 5 years.	Fidelity to training organization wide is not met, as the major medical center only focused on newly hired management staff, not all employees.

Fidelity to surveying employees and capturing VitalSmarts® Crucial Conversations™ along with success and area of importance toward organizational goals not met. No survey metrics were instituted. |
| Inputs | All Employees and Management Personnel
Director of Employee Development
Training Materials:
Workbook
Video Clips
Cue cards
The Book VitalSmarts® Crucial Conversations: Tools for Talking When Stakes are High(2nd eds), and the audio companion | All New Supervisors, Managers, and Directors Personnel
Director of Employee Development
Training Materials
The Book: VitalSmarts® Crucial Conversations Skills.
PowerPoint Presentation derived from the book | Fidelity to the training materials not met. The use of cue cards, video clip examples, and workbook are not a part of the Major Medical Center training program. The program does not adhere to the content exposed in all 9 lessons. |

TABLE 11. - *Continued*

Logic Model Element	VitalSmarts® Crucial Conversations™ General Program (Aim 1 program logic model)	Major Medical Center Crucial Conversations™ Theory Training (Aim 2 program logic model)	Fidelity between VitalSmarts® Crucial Conversations™ Program logic model and Major Medical Center Program Logic Model
Components	VitalSmarts® Crucial Conversations™ Training	Crucial Conversations™ Theory Training	Fidelity to the activity of VitalSmarts® Crucial Conversations™ Training is met.
Components	VitalSmarts® Crucial Conversations™ Training	Crucial Conversations™ Theory Training	Fidelity to the activity of VitalSmarts® Crucial Conversations™ Training is met.
Implementation Objectives	Train all employees and management proficiency to engage in VitalSmarts® Crucial Conversations™ Training To use a standard survey to assess the impact of VitalSmarts® Crucial Conversations™ Training on organizational issues.	Train all supervisors and management proficiency to apply Crucial Conversations™ theory	Fidelity is not met as only supervisors and management are mainly trained. No survey instrument implemented to evaluate objectives.
Outputs	Number of employees trained/ number of employees Number of Managers trained /Total Number of Managers Number of Surveys returned.	Number of Supervisors, Managers and directors trained	Fidelity to program outputs is not met. Only new supervisors, managers, and Directors are trained with limited employees exposed to the program.
Linking Constructs	Number of VitalSmarts® Crucial Conversations™ Training Reported	Number of reportable employee incidents	Fidelity to the linking construct not met as there is no connection between VitalSmarts® Crucial Conversations™ Training and the program goals, as well as progress toward goals not being tracked.
Short Term Goals	Increased number of Self-Reported VitalSmarts® Crucial Conversations™ Training Survey Accounts	Decreased numbers of unresolved issues. Numbers of unresolved issues reported to executives	Fidelity to short term goals of increased self-reported VitalSmarts® Crucial Conversations™ Training not met. Fidelity to programs goal of decreased numbers of unresolved issues not met nor tracked.
Long Term Goals	Increased Number of VitalSmarts® Crucial Conversations™ Training Reports indicating High Confidence of Success; with High Stakes Conversations that are centered on important company sectors/areas of interest. Improvement correlates with numbers of VitalSmarts® Crucial Conversations™ Training self-reporting. VitalSmarts® Impact Cloud indicates increased dialogue in areas of executive/organizational interest. Executive Metrics Improve:	Not Addressed	Fidelity to long term goals not met nor addressed.

In summary for the first comparison of Aim 4 there is no fidelity between the VitalSmarts® Crucial Conversations™ general program logic model and the major medical center's Crucial Conversations™ theory training program logic model with the exception of concepts shared in the book *Crucial Conversations Skills* (Patterson et al. 2011). These concepts were reported as controlling emotions, contributing to the shared meaning pool, and recognizing disruptive behaviors.

Second Fidelity Comparison

The second comparison to evaluate fidelity is presented in Table 12. The Exemplar CLABSI program logic model represents an application of the VitalSmarts® Crucial Conversations™ general program logic model and Crucial Conversations™ theory to preventing CLABSI events. The CLABSI program logic model reports the program paradigm advocated by VitalSmarts (2013) to leverage VitalSmarts® Crucial Conversations™ principles to focus on specific issues critical to the organization such as CLABSI reduction. The exemplar also details integrating program components from Maxfield et al. (2005) focusing on cultural obstacles preventing VitalSmarts® Crucial Conversations™. Table 12 structures comparing program logic model from Aim 1 with Aim 3, and comparing the program logic model from Aim 1 to Aim 3. Although the major medical center has not applied the VitalSmarts® Crucial Conversations™ general program logic model to a clinical exemplar, administrative representatives reported they were interested in implementing a formal VitalSmarts® Crucial Conversations™ training program.

TABLE 12. VitalSmarts® Crucial Conversations™ General Program Logic Model and an Exemplar CLABSI Program Logic Model Fidelity Comparison Matrix

Logic Model Element	VitalSmarts® Crucial Conversations™ Program (Aim 1)	Exemplar CLABSI Program Logic Model (Aim 3)	Fidelity between VitalSmarts® Crucial Conversations™ Program logic model (Aim 1) and Exemplar CLABSI Program (Aim 3)
Program Objective	Train management and employees to engage meaningfully in high stakes, highly emotional dialogues, where opinions and understanding greatly differ resulting in increased collaboration, consequential solutions to tough issues, and improved overall company performance within one year measured by qualitative surveys reporting VitalSmarts® Crucial Conversations™ occurrences and organizational goals as measured by the Impact Cloud™ (VitalSmarts, 2013)	"Reduce mortality and length of stay among ICU patients caused by CLABSI's (Goeschel, Weiss, & Pronovost, 2012, p. 332). The program reduces the number of CLABSIs by 66% in 18 months. (Pronovost, 2006).	Fidelity met, **Teamwork** program objectives are congruent with VitalSmarts® Crucial Conversations™ training.
Inputs	All Employees and Management Personnel Director of Employee Development **Training Materials** Workbook Video Clips cue cards The Book *Crucial Conversations: Tools for Talking When Stakes are High* (2nd ed.), the audio companion.	Unit based Team Safety Implementation manual Executive Team based Safety Implementation Manual Unit and Executive Team Check off Lists Team Safety Training Materials Team Metrics Tools Tools for managing meetings and communications VitalSmarts® Crucial Conversations™ Teamwork and Communications Training Materials	Fidelity met by integrating VitalSmarts® Crucial Conversations™ Teamwork and Training materials into program inputs.
Components	VitalSmarts® Crucial Conversations™ Training	Providers, Nursing, infection control and management form ICU unit teams Executive Leadership implements the Executive CLABSI Checklists Unit and Executive teams Team safety science, continuous improvement, and teamwork/communication training [VitalSmarts® Crucial Conversations™ Training] Teams create monthly check up assessments Monthly team program reviews	Fidelity met by integrating VitalSmarts® Crucial Conversations™ Teamwork and Training activities into program components.

TABLE 12. - *Continued*

Logic Model Element	VitalSmarts® Crucial Conversations™ Program (Aim 1)	Exemplar CLABSI Program Logic Model (Aim 3)	Fidelity between VitalSmarts® Crucial Conversations™ Program logic model (Aim 1) and Exemplar CLABSI Program (Aim 3)
Implementation Objectives	Train all employees and management proficiency to engage in VitalSmarts® Crucial Conversations™ To use a standard survey to assess the impact of VitalSmarts® Crucial Conversations™ on organizational issues.	Formed Interprofessional Collaborative CLABSI teams Executive level program support Teams implement safety, teamwork, and communications tools. All ICU and Executive Teams complete training Teams identify preventable safety errors. Teams analyze root cause and interventions. Teams share information within the medical center Teams share successes and challenges outside of the medical center.	Fidelity met with all ICU [a district organization] employees and management trained in VitalSmarts® Crucial Conversations™
Outputs	Number of employees trained/ Number of employees Number of Managers trained /Total number of Managers Number of Surveys returned.	Numbers of ICU CLABSI Improvement teams formed. Numbers of Executive team members demonstrating program knowledge and support Numbers of Checklists implemented Number of Teams demonstrating safety science, continuous improvement, and teamwork/communication proficiencies Number of preventable error s identified per month Number of meeting minutes. Number of team communications within the medical center Number of communications outside the medical center	Fidelity met by enumerating all employees and management trained in VitalSmarts® Crucial Conversations™ and numbers demonstrating proficiencies.
Linking Constructs	Number of VitalSmarts® Crucial Conversations™ Reported	Increased number of effective unit based continuous safety improvement	Fidelity to VitalSmarts® is not met in this exemplar by not tracking specific VitalSmarts® Crucial Conversations™ leading to safety improvements.
Short Term Goals	VitalSmarts® Crucial Conversations™ Reports of High Confidence of Success; with High Stakes Conversations regarding important company sectors/areas of interest. Self-Reported VitalSmarts® Crucial Conversations™Survey Accounts	Reduce incidence of CLABSI Reduce rate of CLABSI per 1000 device days	Fidelity not met to VitalSmarts® short term goal by not tracking specific VitalSmarts® Crucial Conversations™ confidence and improvements

TABLE 12. - *Continued*

Logic Model Element	VitalSmarts® Crucial Conversations™ Program (Aim 1)	Exemplar CLABSI Program Logic Model (Aim 3)	Fidelity between VitalSmarts® Crucial Conversations™ Program logic model (Aim 1) and Exemplar CLABSI Program (Aim 3)
Long Term Goals	VitalSmarts® Crucial Conversations™ Reports of High Confidence of Success; with High Stakes Conversations regarding important company sectors/areas of interest. Improvement correlates with VitalSmarts® Crucial Conversations™ self-reporting. VitalSmarts® Impact Cloud indicates increased dialogue in areas of executive/organizational interest. Executive Metrics Improve:	Reduce mortality and length of stay among ICU patients	Fidelity not met to VitalSmarts® long term goal by not tracking specific VitalSmarts® Crucial Conversations™ confidence and improvements

Within the scope of the teamwork and team communication training the CLABSI exemplar program logic model demonstrates fidelity with the VitalSmarts® Crucial Conversations™ general program logic model. The exemplar CLABSI program logic model does not demonstrate fidelity with intended outcomes elements, differencing in linking construct, short term and long term goals. The intended outcomes of the VitalSmarts® Crucial Conversations™ general program is to use surveys of Crucial Conversations™ and measure alignment with organizational goals about critical areas of interest across the organization. Alternatively the exemplar CLABSI program logic model focuses on the specific organizational goals tracking number of CLABSI occurrences, rate of CLABSI events per 1000 device days, and ICU length of stay without concern for other critical issues across the organization.

Aim 4 Summary

In summary, Aim 4 reports two results. The first result shows minimal fidelity between the VitalSmarts® general program logic model and the major medical center's Crucial Conversations™ program logic model. The second result shows fidelity between the program

implementation objective elements between the VitalSmarts® Crucial Conversations™ general

program logic model and the CLABSI exemplar program logic model. Overall, results

demonstrated a lack of fidelity to VitalSmarts® Crucial Conversations™ general program logic

model, but alignment with intended outcomes.

CHAPTER 4: DISCUSSION

The problem of preventable medical errors is complex and involves human dynamics (Henriksen, Dayton & Keyes, 2008). The formative program review of VitalSmarts® Crucial Conversations™ training program theory, a major medical center's implementation of Crucial Conversations™ theory, and an exemplar established CLABSI continuous improvement program integrated with VitalSmarts® Crucial Conversations™ theory demonstrates the application of the program logic model as a tool to address complex issues involving human dynamics and patient safety and quality. The results of the formative program evaluation are program logic models that enable comparing programs' actual observed behaviors with intended outcomes, as well as the fidelity to a program's outputs and intended outcomes (McDavid & Hawthorn, 2006). The program logic models created in Aims 1-3 are discussed in relationship to program fidelity. The discussion that follows explores the formative program evaluation process and the results.

Aim 1 presented a logic model of the VitalSmarts® Crucial Conversations™ general program and reported results that linked employee training, the engagement in Crucial Conversations™ and surveying employees to account for Crucial Conversations™ that contributed to achieving organizational goals. Aim 1 also described the healthcare centric Crucial Conversations™ implementation called Seven Crucial Conversations for Healthcare™ that leveraged the individual training curriculum. Aim 2 described a major medical center in the southern United States implementation of Crucial Conversations™ theory training, which through the formative evaluation process highlighted differences from VitalSmarts® Crucial Conversations™ general program in terms of strength, fidelity and adaptability.

Aim 3 described a comprehensive clinical exemplar CLABSI continuous improvement program integrating ideal concepts from two different patient safety and quality improvement

programs within a VitalSmarts® Crucial Conversations™ general program logic model. Furthermore, Aim 3 integrated the Maxfield et al. (2005) Seven Crucial Conversations for Healthcare™ program implementation elements, specific to health care within an exemplar CLABSI program logic model. Inclusion of teamwork training as an implementation objective recommended by Maxfield et al. (2005) is further discussed in terms of human dynamics as an integral factor influencing patient quality and safety. The fit within health care is explored in detail within Table 13. Aim 4 contrasted results from Aims 1 through 3, comparing program fidelity as program evaluation processes discerning observed implementation objectives with intended program goals. Fidelity is discussed, in relationship to program adaptability and program strength.

Program Fidelity

Summerfelt (2013) proposed two criteria for program evaluation – program treatment strength and program fidelity. Summerfelt described treatment strength as the evaluation of program efforts and intended results, and program fidelity as the evaluation of the program implementation to the theoretical plan. Hill, Maucione and Hood (2006) discussed program fidelity as an important factor for program evaluation, however, program evaluation methodologies must also consider adaptation along with fidelity as a program evaluation criterion. Hill et al. stated that time constraints is a factor leading to education program adaptation. Hill et al. also suggested that program adaptations might have positive and/or negative influences on program effectiveness, or program treatment strength. The concepts of program fidelity, program adaption and program treatment strength might suggest a balance between program fidelity and program adaption within a particular organization that optimizes overall program strength.

The review of the literature using the search terms "Crucial Conversations Program Review" did not demonstrate peer reviewed literature using scientific methodologies or the use of formal program review methodologies to evaluate Crucial Conversations™ program efficacy. Rather relevant literature revealed case studies where the Crucial Conversations™ program was applied within organizations and achieved expected results. Kernaghan (2013) presents a typical example:

> "Kernaghan says that while it's difficult to isolate the causes behind St. Joseph's recent successes, Crucial Conversations™ has had a noteworthy impact. In 2011, the hospital earned accreditation with exemplary standing, and its employee engagement survey showed 64% of responses were higher than the provincial average." (p. 2)

Stetler et al. (2006) stated: "Formative evaluation, used in other social sciences, is herein defined as a rigorous assessment process designed to identify potential and actual influences on the progress and effectiveness of implementation efforts" (p. S1). Stetler et al. further advocate that the formative evaluation process provides a methodology for exploring complexities involving program implementation, and specifically the concepts of human dynamics affecting "context, adaptation, and response to change" (p. S1). This might suggest that the formative evaluation is a methodology for understanding continuous improvement programs applied within a complex organizational environment where scientific methodologies present daunting challenges.

Fidelity: Major Medical Center Program to VitalSmarts® Crucial Conversations™

The data presented within Table 2 demonstrate an organizational wide implementation of the VitalSmarts® Crucial Conversations™ general program. A review of Table 11 demonstrates no fidelity between the major medical center's Crucial Conversations™ training program reported in Table 4 and the VitalSmarts® Crucial Conversations™ general program reported in

Table 2. It is important to note that the ideal VitalSmarts® Crucial Conversations™ general program includes wide organizational sponsorship and support tying training to overall organizational goals. The major medical center DED revealed in interviews that the program's intent was to simply train individuals within the management hierarchy on Crucial Conversations™ theory, and never intended on formally linking training with specific overall organizational objectives.

This difference in fidelity might be an important lesson. The DED might have demonstrated adapting the VitalSmarts® Crucial Conversations™ program to the major medical centers environment, and in particular, adapted the program to fit entirely within the scope of the DED's mission focused on employee orientation.

The DED reported that they decided not to adapt the VitalSmarts® Crucial Conversations™ program within a formal continuous improvement program due to cost constraints and need for subsequent executive approval. Thus, the DED implemented the individual Crucial Conversations™ theory training during orientation, which required minimal executive leadership sponsorship and support. The DED reported that the simpler approach limited program complexity and enabled rapid implementation. However, the process of building a program logic model from VitalSmarts® Crucial Conversations™, the process of creating a program logic model illustrating the major medical center's Crucial Conversations™ training program, and comparing fidelity between the programs enabled the CRO and DED to appreciate the value of the VitalSmarts® Crucial Conversations™ program that was expressed during interviews.

In examining the major medical center's Internal Review Board process for approving this study it was found that the VitalSmarts® Crucial Conversations™ general program theory

was first exposed to the IRB and the major medical center's executive leadership by this activity.

This exposure included presenting excepts from Maxfield et al. (2005), Maxfield et al. (2012),

Goeschel et al. (2012) and Pronovost et al. (2006) that connected Crucial Conversations™ theory

within a program logic model addressing CLABSI. This presentation initiated a formal CLABSI

improvement program training all staff involved with the cardiovascular intensive care unit using

the VitalSmarts® Crucial Conversations™ training program. This program is being led by the

CRO and is in progress at the major medical center as of this publication. Of significance is that

Knowlton and Phillips (2013) discussed the process of building the program logic model as a

tool to discovery.

The process of understanding fidelity related to measuring program efficacy is of note.

Deming (1986) discussed the role metrics and measurements have in not only assessing, but also

controlling the outputs of an organization. Deming continued to elucidate that metrics can have a

positive or negative influence affecting observed organizational behaviors and congruency with

intended outcomes. The process of building the program logic models begins the understanding

of linking observed organizational outputs with intended goals (Knowlton & Phillips, 2013;

McDavid & Hawthorn, 2006). The process of formative program evaluation and determining

program fidelity using a program logic model illustrated this understanding at the major medical

center. For example, simply instituting ICU length of stay metrics at the unit level might lead to

decisions to discharge patients too early; however, measuring factors that risk patient quality and

safety that lead to longer ICU length of stays support the intended outcomes.

Fidelity Spectrum

Program fidelity might exist within a spectrum of compliance and strength toward

program objectives. The concept of program adaptability might influence the degrees of program

fidelity along with feasibility. For example, training 5774 employees using the formal

VitalSmarts® Crucial Conversations™ program has an undiscounted estimated cost of 6.8

million dollars. These costs do not include the opportunity costs, and salary and benefits costs as

examples. However, training a small number of employees within a specific unit to enhance and

improve quality and safety outcomes might be more feasible.

Saxton (2012) and Major, Abderrahman and Sweeney (2013) provide two separate cases

and implementation strategies that offer understanding of Crucial Conversations™ program

fidelity. Saxton illustrated applying Crucial Conversations™ theory to a specific organizational

culture issue. Major et al. described a wider and deeper implementation of Crucial

Conversations™ theory.

In the first case Saxton applied Crucial Conversations™ theory to resolving specific

Crucial Conversations™ between physicians and nurses using self-efficacy scores rating the

number of disruptive behaviors before and after training. Saxton reported improved self-efficacy

scores.

In the second case Major et al. applied Crucial Conversations™ theory and training

model as a framework to describe specific conversations and disruptive behaviors between

nursing professionals. Major et al. reported general safety and quality culture improvements.

Major et al. summarized the connection between theory and application to patient care

quality and safety:

> "In our experience, crucial conversations tend to begin with a discovery or
> knowledge-gathering phase, then progress to a decision-making and
> implementation phase, and conclude with a feedback and adjustment phase,
> during which those involved review the need for ongoing or additional changes.
> Creating a culture of safety on the unit and among the staff depends on the
> nursing leadership's ability to successfully navigate these phases to resolve
> incidents of lateral violence." (Major et al., 2013, p. 70)

These two cases might suggest program adaption to particular program constraints, but maintaining the crux of the Crucial Conversations™ program as an input toward program goals. The implementation of Crucial Conversations™ program theory at the major medical center aligned mostly with program adaption experiences described by Saxton (2012), excluding the use of formal surveys depicted in Saxton.

Silence Kills™ Healthcare Program Logic Model

The exemplar reported in Table 10 demonstrated applying formative program evaluation methodologies assessing Maxfield et al. (2005) *Silence Kills*, and creating an innovative program logic model focusing on a particular healthcare issue. This program logic model shown in Table 10 integrates Maxfield et al. (2005) Crucial Conversations™ theory, recommendations for using focus groups, executive senior management led teams, and addressing organizational based cultural constraints preventing open dialogue, with the recommendations of Goeschel et al. (2012) specific to a CLABSI improvement program. However, an organization might focus exclusively more on the culture of quality and safety before addressing other organizational issues or specific event types. Maxfield et al. (2005) made explicit recommendations in implementing Crucial Conversations™ theory within a healthcare organization that might be worthy of a specialized program.

The program logic model depicted in Table 13 demonstrates Maxfield et al. (2005) recommendations to apply the VitalSmarts® Crucial Conversation™ general program logic model to healthcare. Using Maxfield et al. (2005) recommendations as logic model elements enabled presentation as a program logic model with outcomes focused on Maxfield et al.'s (2005) concept The Seven Crucial Conversations for Healthcare™.

TABLE 13: Silence Kills™ Seven Crucial Conversations for Healthcare™ Logic Model

Program Objective: Reduce the organizational obstacles by 20% in one year as measured by the VitalSmarts® survey that prevent open conversations between nurses and healthcare workers in the Big Hospital CVICU regarding "Broken Rules, Mistakes, Lack of Support, Incompetence, Poor Teamwork, Disrespect, and Micromanagement" (Maxfield, 2005, p. 3), which relates to adverse patient outcomes (Maxfield, 2005, p. 7-14).

Implementation				Intended Outcomes		
Inputs	**Components**	**Implementation Objective**	**Outputs**	**Linking Constructs**	**Shorter Term**	**Longer Term**
Nursing Staff Allied Health Staff Provider Staff Senior Leadership	Organizational Assessment	To use Focus groups to Assess obstacles preventing the organization from engaging in the Seven Crucial Conversations™ (Maxfield, 2005,p. 14)	Number of groups formed Number of Participants total	Number of issues identified	Reduce organizational obstacles for engaging in tough self-reflective conversations. (["Broken Rules, Mistakes, Lack of Support, Incompetence, Poor Teamwork, Disrespect, and Micromanagement" (Maxfield, 2005, p. 3)] Outcome Indicator: Increased Reporting of Seven Conversations **Primary measurement**: Seven Crucial Conversations™ *Follow up Survey* **Secondary Measurement***:* Confidential Adverse Events Reports	Reduced adverse outcomes caused by organizational issues; (["Broken Rules, Mistakes, Lack of Support, Incompetence, Poor Teamwork, Disrespect, and Micromanagement" (Maxfield, 2005, p. 3)] **Outcome Indicator:** Decreased Adverse Patient Outcomes **Primary measurement**: EHR Audit Reports **Secondary measurement:** Confidential Adverse Events Reports:

Seven Crucial Conversations™ Program Outcomes and Metrics

The initial program implementation objectives leading to program outcomes as shown in

Silence Kills™ Seven Crucial Conversations for Healthcare™ Logic Model (Table 13) derive

from Maxfield et al. (2005). Maxfield et al. (2005) specified that establishing a baseline and

targets for improvement are important steps for creating relevant surveys assessing the impact of

Crucial Conversations™ theory on organizational issues, and this forms the implementation

objectives for the logic model described within Table 13. Maxfield et al. (2011) later depicted

using both quantitative and qualitative surveys as a metric for assessing the organization's

baseline in confronting the factors obstructing employees from openly engaging in Crucial

Conversations™. Maxfield et al. (2011) explained the importance of not only using surveys as a

data point for assessing the baseline and identifying a specific target for improvement, but also as

a means to communicate the importance of the program to the organization. Maxfield et al.

(2005) recommended surveying the organization quarterly to provide a sufficient feedback loop

for improvement. All these concepts and program elements apply Crucial Conversations™

theory toward program outcomes.

A review of the literature shows that Maxfield et al. (2011) followed up on Maxfield et

al. (2005), and demonstrated a combination of qualitative and quantitative survey instruments

soliciting program participant feedback. Maxfield et al. (2005) explained that these instruments

should frame feedback to include recalling pre-program experiences and relationships with

subordinates, peers, and superiors. Maxfield et al. (2005) recommended that feedback should

include organizational information such as the level the employee contributes in the

organization, the type of professional (e.g., nurse, physician, allied health worker, etc.), and

Likert scales measuring organizational data points such as satisfaction with employment at the

facility, satisfaction with autonomy, satisfaction with production and meaningful work,

satisfaction with patient quality and safety, and satisfaction with compensation as it applies to

organizational culture. Maxfield et al. (2005) further described surveying data points for specific

instances and frequencies of Crucial Conversations™ such as observing health care workers

taking shortcuts and endangering patients, and if the person addressed the problem and with

whom. Maxfield et al. (2005) then proposed to regularly survey post-training to determine

organizational culture change. Adding to these survey experiences, Maxfield et al. (2011) also

recommended that qualitative surveys should describe Crucial Conversations™ and the

perceptions of outcomes as feedback for program success. The use of quantitative and qualitative

surveys is a critical feedback to safety and quality culture improvement (Maxfield et al., 2005;

Maxfield et al., 2011).

Culture Focused Improvement

A review of Maxfield et al. (2005) illustrates a unique detail from the literature in Table 1

because Maxfield et al. (2005) specifically advocated for organizational leadership to direct

organizational wide participation, and aggressively remove obstacles that prevent having

meaningful conversations openly within the health care organization (Maxfield et al., 2005;

Maxfield et al., 2011). Further, Maxfield et al. (2005) recommended five specific program steps

for implementing Crucial Conversations™ within a healthcare organization: "establish a baseline

and a target for Improvement"; "conduct focus-group interviews"; "focus on problem areas"; and

"implement training" (p. 14-15).

Maxfield et al. (2005) succinctly stated the specific goals for Crucial Conversations™

theory as applied to healthcare:

> "It is critical for hospitals to create cultures of safety, where healthcare workers
> are able to candidly approach each other about their concerns. The added benefits
> in productivity improvement, reduction in nursing turnover and physician
> cooperation make improvement in this core competence an overwhelmingly high-
> leverage objective." (Maxfield et al., 2005, p. 13)

Maxfield et al. (2005) distinctively described Crucial Conversations™ program theory

and healthcare quality and patient safety in the landmark paper called *Silence Kills* (Maxfield et

al., 2005). Maxfield et al. (2005) described Crucial Conversations™ program theory as applied

to healthcare quality and patient safety by explicitly describing seven negative organizational

factors that lead to high stakes and highly emotional confrontations with differing opinions

defined as The Seven Crucial Conversations in Healthcare™. Maxfield et al. (2005) identified

factors distinctively categorized as applicable to health care as follows: "Broken Rules;

Mistakes; Lack of Support; Incompetence; Poor Teamwork; Disrespect; and Micromanagement"

(Maxfield, 2005, p. 3.)

Implementation Context: Conduct Focus Groups

As described by Maxfield et al. (2005), the program logic model describes using focus

groups as the implementation objective. With a focus group approach, obstacles to engaging in

Crucial Conversations™ within the organization can be identified. In a specific paragraph

Maxfield et al. (2005) stressed that the process of conducting focus groups is critical to success:

> "Form interview teams that include top administrators and key physicians, and
> have these interview teams lead focus groups. It is important to have leaders, not
> staff, conduct these interviews. Leaders need to hear about the problems and their
> causes directly, and they need to demonstrate their willingness to listen."
> (Maxfield, 2005, p. 14)

Focus on problem areas. Maxfield et al. (2005) recommended focusing on specific

problem areas using employee surveys and focus groups to identify two or three impact areas

where employees and management agree that obstacles block Crucial Conversations™. Maxfield

et al. (2005) continued to advocate forming teams within these areas that have the wide

participation of leaderships such as "medical and administrative [leadership]" (p. 15). Maxfield

et al. (2005) proposed that success is based on the teams identifying obstacles, as well as

developing solutions and the metrics for testing these solutions.

Seven Crucial Conversations for Healthcare™ Summary

The outcomes illustrated in the program logic model shown in Table 13 are an integration

of concepts demonstrated in Table 2 with the specific concepts Maxfield et al. (2005) applied to

health care. The program logic model depicted in Table 13 assumes the value provided by the

VitalSmarts® Crucial Conversations™ training program that provides both a template for training employees as well as and a template for conducting training (VitalSmarts, n.d.). In addition to the structure provided by VitalSmarts® depicted in Table 2, Maxfield et al. (2005) specifically suggested that the organizational leaders conduct the training as well as set the example for the organization. Maxfield et al. (2005) also recommended using real examples as a part of the training and ensure that the training is relevant. The logic model illustrated in Table 13 shows focusing on pertinent issues by applying Crucial Conversations™ theory within focus groups to identify issues involving cultural barriers to open dialogue, and to continue the application of Crucial Conversations™ theory toward resolving patient safety and quality issues.

The program logic model depicted in Table 13 represents a continual process removing organizational constraints to open dialogue rather than a singular project with an end. Maxfield et al. (2005) also recommended spacing the training sessions out and continually training throughout the program cycle (Maxfield et al., 2005). These concepts along with using smaller but widely represented focus groups, and focusing program outputs on specific problems areas should reduce overall training and other program costs.

Program Logic Model and Complexity

Program logic models might be the preferred tools for analyzing complex problems. Healthcare is required to resolve a wide range of problems. Snowden (2002) categorized all problem sets into four quadrants characterizing elements by patterns as a spectrum ranging from absolute predictability to emergent chaotic pattern models. The application of methodologies and tool sets might vary according to a problem set's attributes. In particular, the use of linear and non-linear methodologies might vary with attributes, and problems involving human dynamics

might suggest the need for different problem solving approaches, that is not just a scientific approach but a non-linear approach to non-predictable phenomena.

Understanding Complicated and Complexity — Cynefin Framework

Problems involving human dynamics might involve complexity, as well as complications. Hasan and Kazlauskas (2009) describe human dynamics, community behavior, and the required management and leadership styles adapted to resolving complicated and complex issues. In quoting Snowden's (2002) developed Cynefin framework, Hasan and Kazlauskas explained these four domains as follows: simple "in which the relationship between cause and effect is obvious to all" (p. 4); complicated "in which the relationship between cause and effect requires analysis or some other form of investigation and/or the application of expert knowledge" (p. 4); complex "in which the relationship between cause and effect can only be perceived in retrospect" (p. 4); and, chaotic "no relationship between cause and effect at systems level" (p. 4). Hasan and Kazlauskas further explained that these four domains cluster collective decision making and conflict resolution issues.

Program Logic Model and Non-Linear Thinking Methodologies

Related to complicated and complex problems, Knowlton and Phillips (2013) proposed that the process of modeling and the program logic model enables non-linear thinking critical for systems thinking and to represent complex problem sets. Hill, Maucione and Hood (2006) suggested that programs are non-linear in nature due to program adaptability as an influence on the overall program. This might imply that improvement programs such as the VitalSmarts® Crucial Conversations™ general program require non-linear thinking methodologies for implementation. More so, there might be problem sets within health care that require non-linear thinking for eventual resolution.

Logic Models Address Complex Non-Linear Problems of Human Dynamics

When considering human performances and program outputs, Karwowski (2012) proposed that human performance demonstrates non-linear adaptive complex behaviors along with deterministic chaos. Understanding these systems requires applying the science of adaptive complex systems. The toolsets and analyses required of problems within the complex adaptive systems domain, like human performance, involve integrating scientific methodologies with other objective comparative methodologies. This differs greatly from analyzing complicated but predictable problems sets using scientific methodologies alone (Patkai, 2004).

Logically, there might be human performance metrics that do not align with organizational goals, and conversely applying organization goals to evaluating human performance might result in not realizing intended outcomes. Higgins (2002) would agree that the program logic model enables non-linear thinking and evaluating complex problem sets.

Higgins stated that although applying linear methodologies has led to many discoveries within medical sciences there are many important problems within the medical sciences that remain unsolved. Therefore, Higgins proposed that these problems require non-linear methodologies rather than linear scientific methodologies. Higgins also suggested that explaining emergent dynamic systems behaviors (e.g., such as human performance), is a problem set suitable to applying non-lineal thinking, and not fitting for linear thinking methodologies. This PI proposes that the program logic model as proposed by McDavid and Hawthorn (2006) provides the infrastructure for understanding and framing human dynamics within a program environment.

A Crucial Conversation: Applying Program Logic Models and Non-Linear Thinking to Human Dynamics

An example of a complex problem is the variation of patient outcomes with time and day of admission. This might be a complex problem that is possibly related to human dynamics and the organization. Cavallazzi (2010) suggests weekend ICU admissions correlate with possible adverse outcomes, but Laupland (2008) reports a relationship with weeknight ICU admissions. Kostis (2007) proposes a relationship between weekend emergency CVICU admissions and adverse outcomes, but Carr (2011) reports no variation in adverse outcomes with emergency trauma ICU admissions. The variation in results might be explained by the complexity inherent to patient safety and quality. Maxfield et al. (2005) proposed organizational factors within healthcare influence the environment and outcomes. There are also positive and negative effects of the organization's social network (Benham-Hutchins & Clancy, 2008; Effken et al, 2005; Moss & Elias, 2010). These types of problems might require a different approach. Walker and Avant (2011) suggested the synthesis strategy; "moving from observations to inferences and then generalizing from specific inferences to more abstract ones" (p. 122). Qualitative and quantitative methods are the paradigm for inferring relationships from observations (Walker & Avant, 2011). Varadhan, Segal, Boyd, Wu and Weiss (2013) proposed a framework structuring heterogeneous treatments and findings into descriptive and predictive domains. Snowden (2002) defined complex problems by retrospective causal attributes that fail to reliably predict future behaviors. Varadhan at al. described the rigor of predictive compared to descriptive methodologies; however, non-linear thinking using systems modeling processes as the methodology and the program logic model as the instrument could better describe complex

organizational problems for continuous quality improvement programs within the constraints of missing predictable factors.

Conclusion

There are simple and complicated factors affecting patient quality and safety that align well with scientific methodologies; however, human dynamics as factors influencing patient quality and safety are complex, and require unique methodologies and tool sets to understand and improve results. The formative program evaluation is a methodology and the program logic model is a tool for effectively synthesizing human performance within the scope of a continuous improvement program, such as the VitalSmarts® Crucial Conversations™ general program.

Applying VitalSmarts® Crucial Conversations™ General Program Theory

In summary, the VitalSmarts® Crucial Conversations™ general program theory applies to individuals and organizations as a spectrum ranging from self-improvement, to organizational continuous project improvement, to exploring organizational barriers preventing a culture of quality and safety. On this spectrum the major medical center implemented a self-improvement program, but is now interested in using the VitalSmarts® Crucial Conversations™ general program theory to improve quality and safety culture as evidenced by training the CVICU staff in VitalSmarts® Crucial Conversations™ moving beyond the initial major medical center's initial program logic model.

With Maxfield et al. (2005) expansion of VitalSmarts® Crucial Conversations™ general program theory to healthcare, a program logic model reported in Aim 3 demonstrated integrating VitalSmarts® Crucial Conversations™ general program theory within a larger clinical exemplar CLABSI program logic model. This demonstrates adaption within the previously described spectrum while maintain fidelity to VitalSmarts® Crucial Conversations™ general program

theory. This suggests that organization will individually balance fidelity, adaption and program strength. A program logic model provides a tool for systematically evaluating fidelity, adaption and program strength.

Significance to Nursing

Maxfield et al. (2005) pointed out that silence kills, and that nurses often recognize the sequelae leading to preventable medical errors, but they fail to assert themselves. Maxfield et al. (2005) also proposed that nursing when acting as a profession is in a position to intercede within the moment and prevent medical errors. Maxfield et al. (2011) additionally recommended that nursing engage and lead organization-wide continuous improvement programs, as well as provide organization leadership to build a culture of quality and safety. The program logic models reported in Aims 1-3 and the evaluation of program fidelity should provide the nursing profession a framework for assessing and improving patient quality and safety programs across the previously described spectrum.
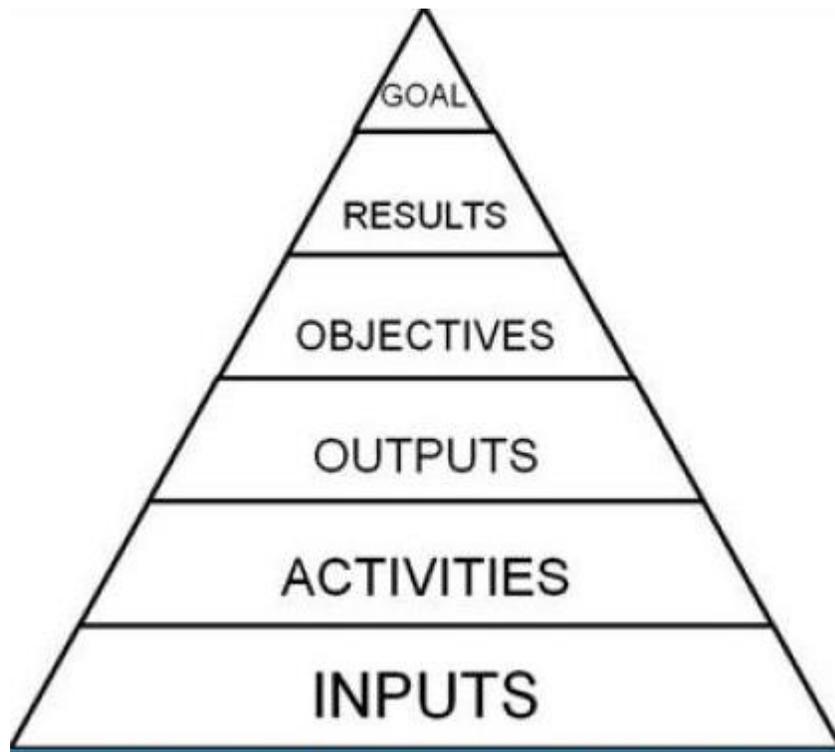
The application of formative program evaluation and program logic models is of significance to advanced practice nursing tasked with leading translational research and organizational continuous improvement. The use of a program logic model to frame a formative program review of a complex problem might be useful as an exemplar for addressing other complex problems affecting patient quality and safety as well as healthcare in general. Moreover, the program logic model could be a method framing results for dissemination through scholarly works.

The crux of book *Crucial Conversations: Tools for Talking when the Stakes are High* is that effective communication methodologies involve contributing meaningfully and developing shared meanings (Patterson et al. 2011a). Crucial Conversations™ theory might be the path for

the nursing profession to more effectively influence healthcare, and shared meanings regarding

patient quality and safety, resulting in progress toward goals. Patients are depending on this

improvement.

APPENDIX A: MEDICATION ERROR CAUSAL LOOP DIAGRAM

Copy of the Email granting Permissions to use Fig 1 Medication Error Causal Loop Diagram
Email Dated 10/21/2013
Geoff McDonnell to David R Trinidad:
"Yes David, you can use this model graphic. Could you send me a copy so I can check it is one of my own originals?" (Personal Communication, October 21, 2013)

APPENDIX B: VERTICAL LOGIC FRAMEWORK

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Publisher of your work: University of Arizona College of Nursing
Expected publication date: Nov 2013

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