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An Architectural Framework for Evidence-Based Practice Diffusion, Dissemination, and Institutionalization

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DNP Project

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Table of Contents

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Section I: Abstract

Technology, innovation, and a demand for the safest, value-added healthcare have led to the proliferation of research studies. Unfortunately the evidence from most of those studies has yet to be applied to evidence-based practice (EBP) projects. Much of this research and many of EBP projects remain waiting to be retrieved, analyzed, translated, and applied to everyday practice. A finding from the Agency for Healthcare Research and Quality (AHRQ) is that it takes approximately 10 years to integrate research evidence into practice (Rogers, 2009). Recent studies recognize nurses as a vehicle to shorten the research-to-practice 10-year journey; nurses are realized as the pinnacle for achieving safe and effective patient outcomes (Eggenberger, 2012). In order to maximize nurses' capability, however, nurse leaders are challenged to identify and create the necessary support to deliver safe, EBP. Astonishingly, nurse leaders, in general, have also been identified as ill-equipped for EBP promotion (Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012). For this reason, nurse leaders are implored to identify a framework and champion support needed for nurses to be successful with engaging team members to understand and utilize EBP. The goal, therefore, of this project was to create an adaptable EBP architectural framework with design elements and resources, which may be utilized and modified by nursing leaders across health care environments, including those incorporating high reliability, project management, continuous improvement, and lean principles. In creating this framework for EBP diffusion, dissemination and institutionalization, clinical outcomes of this organization improved from low to high decile performance.

Key words: *Diffusion, dissemination, institutionalization, evidence-based practice, project management*

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Section II: Introduction

Background Knowledge

Owning the challenge and potentiating nurse leaders' diffusion, dissemination, and institutionalization (DDI) of EBP. By the year 2020, the Institute of Medicine (IOM) projects that "90% of all clinical decisions will be supported by accurate, timely, and up-to-date clinical information that is supported by the best available evidence" (Olsen, Aisner, & McGinnis, 2007, p. 353). Nursing is the largest body of healthcare providers and its leaders have the charge to start building the framework that successfully enables its constituents to practice in the current and future world of EBP.

The author's organization, an acute care hospital with approximately 1,000 RNs, has a challenge with diffusing, disseminating, and institutionalizing (DDI) EBP into its culture (Newhouse, 2007). This challenge makes it difficult to position itself to keep pace with the IOM's challenge to expedite improvement of US population health (Institute of Medicine, 2010). Stakeholders in this organization include the hospital-based nurses, who in large part oversee the healthcare team's coordination of patient care. However, when asking this organization's hospital-based nurses about their challenges with EBP implementation, 70% said they lacked the time (Appendix A).

When evaluating articles and experiences culminated in the last five-plus years since the IOM published their call to action, a common denominator became apparent in the equation for successful diffusion, dissemination, and institutionalization of EBP. This common denominator is the nurse leader, playing a multitude of key roles such as: (a) architectural designers of the

organization's framework, (b) advocates for resources and project managers, and (c) orchestrators of stakeholders at the micro, meso, and macro levels in their respective environments. As conveyed by Newhouse (2007), "Organizational leadership is the key to evaluating the needs of the organization, identifying the resources required, and creating a strategic plan for infusing EBP into the fabric of the organization" (p. 22). Upholding this performance standard is the American Nurses Association *Nursing Administrators: Scope and Standard of Practice*, which also echoes the responsibility of the nurse leader to integrate evidence by creating an environment with sufficient resources (American Nurses Assocation, 2016).

Given these professionally accountable standards, each nurse leader is challenged to critically evaluate their respective organization's cultural fabric, its potential, its readiness, and its gaps. Therefore, as leaders it is critical to share EBP DDI learned lessons, which can aid an expeditious, affordable, and an informed roadmap for success for other peers. Finally, as a nursing leadership body, there is a common vision, which at times, can be obscured with daily challenges. Clarity becomes possible by empowering and encouraging nurse leaders to embrace the responsibility notwithstanding of their common, everyday operational challenges.

Gallagher-Ford writes about the importance of having "multiple strategies at multiple levels" (Gallagher-Ford, 2014, p. 73). With that outcome in mind, this project introduces the development of an architectural framework with elements and resources, which embraces the philosophy of "multiple strategies at multiple levels" (Gallagher-Ford, 2014).

Context and history. United States ranks last in comparison to ten other economically developed countries when it comes to accessibility, affordability of healthcare and healthcare outcomes (Davis, Stremikis, Squires, & Schoen, 2014). These numbers are humbling, given the

disparate cost per patient as compared to other countries (Davis, et al, 2014) (Appendix B). Given these rankings and the IOM's recommendations, the author's healthcare system (located within Northern California) has made bold changes in its organization's leadership redesign in 2015, appointing a Vice-President of Patient Experience and the organization's first System Chief Nurse Executive. With this focus, the System is aligned to respond more nimbly and accurately to the IOM's call to action. At the very least, the author's organization must respond to the challenge it faces in meeting its targeted quality goals, such as its sepsis performance benchmark (Appendix C). If the architectural framework for diffusing, disseminating, and institutionalizing EBP into its culture is solid, the author's organization can impact its current clinical performance outcomes and achieve top-decile performance and outcomes for its patients. This desired impact, however, must start with evidence-based strategies at the micro, meso, and macro levels of the organization and its respective, System infrastructure.

Local Problem

Setting. The author's organization is an acute care facility with 423 beds, a trauma-receiving center, Level II, as well as a STEMI receiving center and is part of a larger health care system in Northern California. It boasts other certifications which exemplify its commitment for delivering highest quality of care demonstrated by attainment of Chest Pain Center accreditation, Primary Stroke receiving center, and Leap Frog rating of "A". These certifications, however, were overshadowed by the organization's 2014 clinical performance and its realization that an evidence-based intervention is necessary (Appendix C).

Intended improvement. *The Future of Nursing* (Institute of Medicine, 2010) calls for action, which includes the key recommendation of improving the health of the US population, specifically via the impact nurses can make by delivering safe, quality care. Due to the sheer

number of nurses who are directly present at patients' bedsides, this can be done through EBP DDI. The author proposes that nursing leaders consider an architectural framework, inclusive of clinical leaders with a solid project management foundation, enabling their respective organizations to achieve the Institute of Medicine's call for action (Institute of Medicine [IOM], 2010).

Developing an organization's architectural framework for EBP DDI for consideration and individualization by other like and similar organizations is a goal of this project. This project added further review and ongoing evaluation to Kotter's eight change management steps (Appendix D). The healthcare team was also supported through change by utilizing the model of Advancing Research and Clinical practice through Close Collaboration (ARCC) (Fineout-Overholt & Melnyk, 2015) (Appendix D).

AIM statement. The aim of this project was to reduce sepsis mortality from 21.9% at 2014 baseline to the System's established target of 12.3% by October 2016 via recognition and development of essential design elements, which potentiate existing high reliability organization (HRO), Lean and Continuous Quality Improvement (CQI) strategies and, subsequently, affect successful EBP DDI within an acute care hospital setting. The project identified what elements were needed for this acute care hospital and how it integrated the elements utilizing a project-management view, with vital work breakdown components (Appendix E).

One such intervention was development of an architectural framework where interdisciplinary clinical leaders partner with nurses and provide the needed expertise to fill the research-to-application gap on a topic that would generate unified urgency for change. The framework proposed embraced project management principles, paying close attention to dyad

partnerships, clinical informatics, facilitators, shared governance teams, frontline daily engagement, and executive sponsor responsibilities.

To begin testing the architectural framework proposed in this project, the author started with targeted improvement in its sepsis results, and as other opportunities arose, the framework was applied and refined through implementation of this project with concurrent, learned experiences. Achieving a targeted 3.1% decrease in sepsis mortality by year-end 2015 would mean a difference of 40 lives saved annually. Furthermore, the System planned a target decrease in sepsis mortality to 12.3% for 2016. Given 2014 year-end results of 21.9% and the annual volume of sepsis patients seen at this organization, a 12.3% rate would mean approximately 100 lives saved, annually, if the design supported and affected the adoption of EBP. As such, sepsis was the foundational work for this organization's architectural framework for EBP diffusion, dissemination and institutionalization.

This author chose sepsis as the target disease for improvement as it is the number one cause of death at the organization (Appendix F). Within its affiliated system, this organization has the highest number of patients diagnosed with sepsis (Appendix F). While the organization has made improvements over the last 24 months, a gap existed between its performance and other top-performing organization's within its System (Appendix F).

Given the review of evidence, a clinical leader who facilitates EBP information and integrates methodical processes for dissemination may be the key to EBP diffusion, dissemination and institutionalization. The allocation and intervention of a clinical leader to address sepsis by utilizing EBP, however, is not sufficient. A well thought out plan for diffusion, dissemination, and institutionalization, in partnership with physicians and other interdisciplinary providers, must also be embedded into the architectural design for successful integration at the

bedside. This plan, subsequently, was guided by knowledge attained through a review of literature and appraisal of evidence. This plan directed the author to design the EBP DDI framework and helped answer the question of which of its elements were most successful.

Review of the Literature/Critical Appraisal of Evidence

Appraisal Tools

John Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Evidence Appraisal Tool was utilized to evaluate all articles (Melnyk & Fineout-Overholt, p. 552). This tool was chosen to facilitate consistency in evaluating the level, quality, and relevancy of the evidence to the project. The overall quality of each piece of evidence was appraised (See Appendix G) and synthesized (See Appendix H).

Review of Evidence

Educators as knowledge brokers. Gerrish et al. (2011) conducted a case study with the aim of identifying advanced practice nurses' (APN) approaches to promoting EBP among clinical nurses (Gerrish, McDonnell, Nolan, Guillaume, Kirshbaum, & Tod, 2011). Findings identified by the authors were that APNs fulfilled the role as "knowledge brokers", promoting EBP. The observational research helped identify five processes, driven by the APN. These were generation of information which drove frontline inquiry; accumulation of information which enabled them to be an intellectual resource for frontline staff; synthesizer of knowledge, presenting a composite picture to inform practice at the point-of-care; translating EBP for applicability to current environment and situation; and finally, disseminators of just-in-time information which could be incorporated into practice. As knowledge brokers, the APNs could facilitate change, supportive of EBP. Gerrish et al. (2011) concluded that APNs' clinical

expertise, along with their credibility, uniquely placed them in the position to facilitate the link between EBP and actual practice at the bedside (Gerrish, et al., 2011).

Influencing EBP learning through human interaction. Milner, Estabrooks, and Myrick (2006) conducted a systematic review. The aim of the review was to evaluate clinical educators as facilitators of EBP and to organize the findings by applying the framework: promoting action on research implementation in health services (PARIHS). The authors summarized previous research findings that nurses gravitate towards learning through human interactions over other forms of learning modalities. This finding elevated the importance of evaluating knowledge transfer by "intermediaries", defined as "individuals in the practice environment who are in the position to influence nurses towards specific goals" (Milner et al. 2006, p. 640).

Inclusion criteria were the study of clinical educators, their respective use of EBP, and a research design/framework. The database search produced 254 articles; of those, 144 were screened and narrowed to 13 articles. Most of the articles utilized Rogers' theory of diffusion of innovation. Sample size for the studies reviewed ranged from 25 to 507 participants (Milner et al. 2006).

Of significance was the finding that not all clinical educators could competently analyze EBP. Noting that not all educators are equal, matching educators to the need of the organization, context of the environment, and the scope of the EBP/CPG would be critical. Project management was also revealed as a component of EBP implementation processes (Milner et al., 2006).

Leadership facilitation strategies. Given the identified need to support clinical educators/facilitators/intermediaries with EBP diffusion, the next study chosen was by Hauck,

Winsett and Kuric (2012). The study's purpose was to evaluate the impact of leadership facilitation stratagems, as designed by a Midwest hospital in the USA. Outcomes measured were their nurses' beliefs on importance and frequency of EBP use. A total of seven strategies were designed, with two specifically evaluating EBP mentors. The design of this study was prospective, descriptive and comparative, starting in 2008 with a sample size of n=427 and a comparative group with an n=469 in 2010.

Hauck et al. (2012) used three surveys developed by Melnyk and Fineout-Overholt (2015) to collect data: a) Evidence-Based Practice Beliefs Scale, b) Evidence-Base Practice Implementation Scale (EBP-I), and c) Organizational Culture & Readiness for System-Wide Integration of Evidence-based Practice Survey (OCRS-C) (Melnyk & Fineout-Overholt, Evidence-based practice in nursing & healthcare, 2015). When evaluating the overall strategy and its impact on the frequency of using EBP, the mean scores of EBP use were significantly increased (0.64 (0.69) vs. 0.73 (0.68); $F (1, 900) = 3.5$, $p = 0.061$). These results reflect a 14% increase in EBP use by staff in a two year-period; the goal was to achieve an 8% increase, as measured by the EBP-I scale. This same study evaluated the effectiveness of seven strategies on organizational culture and readiness, yielding a 19% increase in mean scores with the OCRS-C survey that were statistically significant (3.10 (0.96) vs. 3.70 (0.77); $F (1, 896) = 128.1$, $p < .001$) (Hauck, Winsett, & Kuric, 2012).

One limitation of this study was that the 2008 and 2010 samples were cross sectional convenience samples yet were analyzed as independent groups as the researchers were not able to do a paired analysis. While this was a limitation, given the natural attrition and replacement of nurses in this organization, having the study in the same setting/environment added to the strength of the findings (Hauck, Winsett, & Kuric, 2012).

Hauck et al. (2012) pointed to the need to assess leadership capacity to create an EBP culture, as well as, the need to create an essential, competent pool of clinicians (facilitators) who evaluate and use research results. This study also identified the importance of not only, cultural readiness and resources, but also a framework with processes for EBP adoption.

The findings support the use of EBP mentors as crucial at-the-hip resources, advocating and infusing evidence-based practices into practitioners' clinical environment on a consistent basis. Creating an essential, competent pool of clinicians (facilitators) who evaluate and use research results was identified as a need. This study also identified cultural readiness and a framework with processes for EBP adoption (Hauk et al. 2012).

EBP predictors. Influenced by the ARCC framework, a Scandinavian study by Thorsteinsson and Sveinsdottir (2013) aimed to identify predictors for EBP utilization. The researchers document earlier findings that a supportive environment, inclusive of EBP mentors and infrastructure, is key for EBP uptake.

The tools utilized to measure EBP readiness and integration into practice were Icelandic tools called Icelandic Information Literacy for Nursing Practice (I-ILNP) and Icelandic-EBP Believes Scale (I-EBP). A logistic regression analysis was conducted, using SPSS version 11, to isolate promoters of three EBP activities: 1) seeking peer-reviewed information 2) evaluating research findings and 3) using research in practice. The odds ratio (OR) for EBP skills rated 1.484 in its positive association with information seeking; 1.997 for its positive association with evaluating research; and 1.253 for its positive association with using research. The same data source identified three independent variables that contributed significantly (at $p < .05$) towards EBP beliefs. Those three independent variables were EBD skills ($p <. 001$), Discussions about EBP ($p <. 001$) and Familiarity with EBP ($p < .037$) (Thorsteinsson & Svensdottir, 2013).

In summary, Thorsteinsson and Sveinsdottir (2013) identified components for an architectural framework that could positively influence EBP uptake. Those resources include time, educational opportunities, and EBP mentors. This author subsequently reviewed evidence regarding the use of EBP mentors for further findings.

EBP mentors "strongly needed" for EBP diffusion. Melnyk, Fineout-Overholt, Gallagher-Ford, and Kaplan (2012), conducted a descriptive survey (n=690) to evaluate the perception of EBP among US nurses. EBP mentors were available to only 32.5% of the respondents, yet 76.2% of these same respondents "agreed" or "strongly agreed" that they needed 'education and skills building in EBP'. Sixty-eight percent of respondents reported they "needed" or "strongly needed" 'access to an EBP mentor'. When asked for the *one* thing that would help them implement EBP in their daily practice, the top seven answers included: education, access to information, time, clearinghouse of evidence-base information (online), organizational support/awareness, manager support and mentors available on unit (Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012). All of these could be considered in an architectural framework for successful diffusion of EBP.

EBP facilitation defined. The above studies have used various terms to describe an individual who plays a role in research utilization. Those terms are educator (Gerrish et al. 2011), intermediator (Milner et al., 2006) and at times, facilitator (Dogherty, Harrison, Baker, & Graham, 2012). While the terms may be different, the common thread in all of the studies is the role and its purpose of diffusing research evidence into nursing practice.

In a mixed-methods study, focusing on guideline acceptance and early enactment, a study by Dogherty and colleagues (2012) aimed to identify how facilitation occurs and subsequently, effectively create research utilization. The authors' examined the Canadian Institutes of Health

Research knowledge-to-action (KTA) process as developed by the Canadian Partnership Against Cancer. In order to gauge the similarities and differences of facilitation, the researchers looked at Pan-Canadian, regional, and local diffusion of EBP and clinical practice guidelines (CPG). While each of the reviewed sites were different in scope and location, all of the CPGs reviewed were cancer focused, albeit, different CPGs altogether.

To capture and, subsequently map and categorize the discrete processes encompassing facilitation, the authors used Stetler's general definition of facilitation, "a deliberate and valued process of interactive problem solving and support that occurs in the context of a recognized need for improvement and a supportive interpersonal relationship"(Dogherty et al., 2012, p. 5) The Pan-Canadian CPG took 16 months to capture and map; the regional process took 17 months; and the local process took 11 months.

The data was then categorized, using an emerging taxonomy which distinctly identifies four stages of facilitation: planning for change, leading and managing change, monitoring progress/ongoing implementation and finally, evaluating change (Dogherty et al., 2012). This earlier work also identified 46 specific activities/actions involved in the role of facilitation.

To validate that the diffusion processes were accurately mapped and categorized, the researchers then went back to each of the facilitators to review the outcomes. In short, there was agreement and congruence with the emerging definition of facilitation. The study also revealed five additional activities performed by this type of facilitator. These, in part, included "thinking ahead in the process" [and] "ensuring group remains on task…"(Dogherty et al., 2012, p. 8). Given these findings, project management materialized as a key component of facilitation.

Limitations of this study are its scope, limited to Canada and the field of cancer. Another source of potential bias may be that only one author (EJD) extracted and categorized data.

Despite these limitations, this study adds to the depth of knowledge understanding and further definition of facilitation as a role, and most recently, as a process, with a framework, inclusive of project management concepts (Dogherty et al., 2012).

This review of evidence presented verification to support both nurses' desire for enhanced knowledge of EBP and also the barriers of lack of time and expertise (Melnyk & Fineout-Overholt, 2012). Others have identified predictors for successful EBP integration (Thorsteinsson & Sveinsdottir, 2013). Advanced practice nurses see that EBP expertise could derive from an educator (Gerrish et al., 2011); however specific skills and activities are needed to achieve EBP DDI (Milner et al., 2006). Most recently, those skills have been categorized into four distinct phases and 46+ distinct activities, all of which are in alignment with seeing the educator/facilitator as a role as well as project manager. As project manager, an educator could oversee planning, leading change, implementing and evaluating change inherent with EBP adoption (Dogherty et al., 2012).

Finally, other researchers pointed to a framework—an architectural design that could support successful diffusion of EBP (Hauck et al., 2012). Given the research-to-practice gap with sepsis mortality and other clinical outcomes within the organization (problem), the author intended to utilize and align existing resources, as well as procure other resources to develop an architectural framework with multi-level strategies, project managed by a clinical lead, while concurrently being sensitive to its culture and need for change management strategy (Appendix E). In combination of all these elements, this framework was the designed intervention of this project. As the organization had no framework for EBP DDI, the author anticipated the comparison of having such a framework and evaluating its subsequent effect on sepsis mortality

and other clinical outcomes. The state of evidence summarized above points to the probability of success.

Conceptual Framework

Advancing research and clinical practice through close collaboration (ARCC) model is one of the two components of a conceptual framework guiding the work towards EBP diffusion at this organization (Fineout-Overholt & Melnyk, 2015) (Appendix D). ARCC offers project guidance for refinement and focus. ARCC also provides the cultural model of leadership that educators need to assess readiness for understanding, embracing and integrating EBP, specifically with its tools for assessing organizational readiness. The ARCC model's deliberate process for implementation offers similarities to this organization's process for documenting improvements (Appendix D).

The second component of the conceptual framework for this project was Kotter's change management theory (Appendix D), involving eight steps for change: (1) increase urgency, (2) build the guiding team, (3) get the vision right, (4) communicate for buy-in, (5) empower actions and remove barriers, (6) plan for and create short-term wins, (7) don't let up, and (8) make change work (Kotter, 2008). This theory resonates and aligns with this organization's current immersion into the Toyota Management System's Lean culture, which promotes creation of standard work, starting with respect for people and engagement of those who do the work (Liker, 2004).

Empowering nurses to shape the patient experience, focusing on delivery of EBP by an integrated team was an intra and interdepartmental process. Having faced a reduction in force and a contentious labor election, the lead project clinical facilitator was supported to weave improved communication and build trust into the plan. This lead facilitator was encouraged to

work within an architectural framework designed to influence and empower others and cultivate the new approach towards improved teamwork, communication, and improved clinical outcomes. Kotter's management change theory and ARCC's model formed a conceptual framework that best supported the architectural design considering this organization's culture and need for evidence-based intervention.

Section III: Methods

Ethical Considerations

Nurses have ethical standards inherent to their responsibilities. Some of these are explicitly outlined by professional organizations such as the American Nurses Association's (ANA) (2015) *Code of Ethics for Nurses*. In part ANA's code states, "The nurse, in all roles and settings, advances the profession through research and scholarly inquiry…" (American Nurses Association, 2015, p. 27). In carrying out this standard, this same provision outlines that "Nurse executives and administrators should develop the structure and foster the processes that create an organizational climate and infrastructure conducive to scholarly inquiry" (American Nurses Association, 2015, p. 28).

American Organization of Nurse Executives (AONE) (2010) echoes these ethical principals stating, "Within their social mandate to serve others and society, nurses lead in providing clarity to patients in a complex health care setting" (p.1). In part, informing patients of evidence-based practice provides clarity to patients as it relates to care decisions and ethically, upholds principles of health care ethics, specifically, respect for autonomy (Beauchamp & Childress, 2009). Autonomy is defined by the American Nurses Association as "agreement to respect another's right to self-determine a course of action; support of independent decision making" (American Nurses Association, 2015, p. 1). Respecting another's right to self-

determine a course of action implies providing information for each patient's individual decision-making; and, best clinical information is evidence-based, which is the purpose of this project. After review by the University of San Francisco, School of Nursing and Health Profession's Healthcare Leadership and Innovation Department, the author obtained approval of a statement of determination confirming this project as non-research.

Setting

The author's organization is an acute care facility with 423 beds, a Level II trauma-receiving center, chest pain center, as well as a STEMI receiving center, and is part of a larger health care system in Northern California. Evaluation of its internal capabilities, challenges and resources was taken into consideration, understanding that the setting plays a crucial role in developing a strong foundation for the proposed EBP DDI framework.

Safety and quality. Apart from having struggles with achieving 2014 clinical performance goals (Appendix C), the organization also had challenges with it safety culture and record. A culmination of the organization's self-reported adverse events from 2008 through 2012 unveiled an organizational structure, fragile in its construction and framework. As the organization created its strategic vision, a flexible and dynamic framework that can sustain and thrive with the demands and rigor requisite for delivery of safe, quality care was and is necessary to support evidence-based practice culture. As well, at the start of this project, the existing safety and quality processes were void of evidence-based concepts and language.

A probable cause for this vulnerable setting lay in part, with the results and message conveyed through the organization's culture of safety survey as benchmarked against the Agency for Healthcare Research and Quality (AHRQ) standards (Agency for Healthcare Research and Quality, 2016)(Appendix I). The organization's culture of safety survey paralleled results from

the National Research Corporation's (NRC) employee experience of work (EOW) (National Research Corporation, 2016). Best portrayal of the climate and potential RNs' engagement with EBP DDI is the EOW question which rated the nurses' motivation to "contribute more than what is required" (National Research Corporation, 2016). That specific query within the 2014 EOW survey rated approximately 40% at neutral or unfavorable amongst the nurses of this organization.

Through its work with various healthcare organizations, NRC has found a direct correlation between employee engagement and organizational care and the quality of care delivered (National Research Corporation, 2016). Given the organization's EOW 2014 year-end results and the start of this project, the organization was poised and needed change in its approach to safety, quality and nurses' experience of work. Unaddressed, the foundation for EBP DDI would be fragile and one that would not lend itself to sustainability.

High reliability organization journey. After having self-reported the aforementioned sentinel events to California Department of Public Health (CDPH) and in a quest to improve its safety and quality, the leadership team of the organization procured the consultative services of Healthcare Performance Improvement (HPI). HPI is a consulting firm that guides adoption of high reliability organization (HRO) principles. The lessons learned from HROs could be woven into this organization's quality framework, while concurrently integrating EBP.

Regardless of location, HROs' principles include five key concepts that aim to address an organization's safety culture:

1) Sensitivity to operations: requires presence of leadership in the frontline to understand and support day-to-day operations and challenges

2) Reluctance to simplify: recognizes that healthcare is a complex interactive system, which cannot rely on short cuts at the expense of safety

3) Preoccupation with failure: includes looking at all failures because all too often the cause of errors is due to behaviors tolerated within an organization

4) Deference to expertise: involves and empowers individuals most closest to the work to problem solve.

5) Resilience: includes the ability to be flexible and responsive to disruptive events, utilizing the framework and HRO resources and framework (Muething, et al., 2012, p. e424) (Fracica, Wilson, & Chelluri, 2010).

One of the common themes documented by organizations integrating HROs' principles is recognition that combining process improvement with behavioral change can increase safety (Hilliard, Sczudlo, Scafidi, Cady, Villard, & Shah, 2012). Leadership, however, must champion this behavioral change in order to affect a cultural change.

When looking at this organization's HPI assessment, a majority of its serious safety events were related to culture. Of these culture-related errors, 79% were "rule-based" errors where the individual was trained, competent, experienced and either misapplied the rule or failed to follow the rule. When HPI interviewed the organization's frontline staff, it was determined that this conscious deviance was secondary to intimidation and fear of retaliation from co-workers or physicians (Healthcare Performance Improvement, 2014). This finding was in alignment with the AHRQ results for this author's organization, which showed a need for improved communication (Appendix I). A change was needed and the organization's leadership needed to determine where to begin the change.

Lean. At the start of this project, the organization and its affiliated System was in the process of adopting Lean-manufacturing principles (Liker, 2004). These principles have overlapping philosophies with HRO, CQI and EBP. As an example, Lean incorporates the philosophy and practice of standard work, which promotes consistency and safety, similar to HRO principles (Liker, 2004). However, because of Lean's stages of infancy within the author's organization, there was little-to-no integration of CQI, HRO principles, Lean and EBP.

The author considered Lean, HRO, CQI and project management as vital, core components to the strategy of EBP DDI. Interlacing them was a focus in developing the intervention via "multiple strategies at multiple levels" (Gallagher-Ford, 2014).

Planning the Intervention

Assessing RN educational background and readiness for EBP. As the interventions' impact the target audience of RNs, assessing their readiness to understand and apply EBP was also considered. A baseline assessment in March 2015 revealed a mix 60% A.D.N. and 40% BSN/MSN prepared RNs (Appendix J). In positioning the organization to potentiate its RNs to improve patient care outcomes, consideration needed to be given to support enhancing its mix of BSN-or-higher prepared RNs. Recent reviews by the National League for Nursing Faculty Programs and Resources have found the BSN-prepared RN to have the foundation necessary to meet forthcoming challenges in healthcare (Conner & Thielemann, 2013). The RN foundation envisioned by Conner & Thielemann (2013), is inclusive of health promotion, leadership, an understanding of the nurse as a scientist, and basic knowledge of other disciplines which contribute to healthcare promotion, outside of nursing (Conner & Thielemann, 2013). The author is on the advisory board of both local A.D.N. and BSN programs and planned a meeting to discuss strategies for meeting the IOM's call for an 80% BSN workforce by the year 2020.

Development of strategy at the micro, meso and macro levels. At the macro level, the author's organization has established its strategic principles, with "Highest Quality Care" being defined as "Continually striving for and achieving excellent standards of care" (Sutter Health, Memorial Medical Center, 2014). At the micro, meso and affiliate-specific macro level, the Highest Quality Care icon is used to visually brand the organization's efforts towards achieving the desired standard. The strategic principle's vision for Highest Quality Care is guided through

work accomplished through the organization's Lean A3 document, which is analogous to a nursing care plan guiding nursing care (Appendix K). The organization's Highest Quality Care A3 guides work to achieve the desired outcome of top decile performance. Given the author's project, oversight of the quality strategy was granted in partnership with the Quality Director and Chief Medical Executive.

The author's organization also has another architectural resource, which promotes delivery of Highest Quality Care, and that resource is high reliability organization (HRO) principles. As previously mentioned, the challenge during the introduction of EBP into the author's affiliate was assimilating Lean, CQI, EBP, and HRO principles into one common vernacular. Until all resources and approaches to achieve the affiliate's strategy were aligned, the organization's ability to effectually communicate and build urgency and engagement with the frontline personnel would have been hampered. Taking the time to identify similarities of goals and strategy was essential for the author's conversations with various stakeholders.

As an example to the common vernacular and alignment, Lean's A3 devotes the left side of its plan for individuals to think and thoroughly understand the situation before jumping into solutions. HROs have this same framework by stopping and thinking before acting. (Appendix K). Furthermore, the HRO and Lean framework are akin to the nursing process and related to the use of EBP. As an example, the use of EBP allows for assessing patients' status against up-to-date benchmarks and provides a platform for determining best interventions.

The common vernacular obstacle was addressed with conversations within the macro level—affiliate executive-suite and System leadership, which was concurrently undergoing structural and leadership design changes. These design changes generated the "forming and storming" phases originally identified by Tuckman (Bonebright, 2009) (Appendix L). While

leadership underwent its forming and storming phases, norming and performing was envisioned and intended by all team players. However, given the organizational leadership changes of the author's System and specific organization, it took special effort to bring HRO, Lean, CQI, and EBP leaders outside of their respective silos to see the common vision and create clarity to the common outcome--delivery of highest quality care. The affiliate CNE realized each encounter with leaders of HRO, CQI, EBP, and Lean was an opportunity to recognize and form alignment with strategies, regardless of principles used.

Alignment of strategies and platforms. Stevens identifies, "The intended effect of EBP is to standardize healthcare practices to science and best evidence and to reduce illogical variation in care, which is known to produce unpredictable health outcomes" (Stevens, 2013, p. 2). The intended EBP effect aligns with Lean, which builds on standard work and reduces variation (Liker, 2004). Preventing unpredictable health outcomes also aligns with HRO principles, which works towards zero harm events (Healthcare Performance Improvement, 2014). Furthermore, EBP also aligns with the IOM's definition of quality--"Degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge**"** (Institute of Medicine, 2013, p. 1). Having all leaders of the organization recognize the inter-relationships between CQI, Lean, HRO, and EBP was, and continues to be, an ongoing opportunity for the organization. The author recognized that until meso and macro leaders see and speak to the commonalities, building EBP DDI at the micro level would remain challenging. The author recognized and planned for alignment of CQI, Lean, HRO, and EBP as interventions that could potentiate each other towards the common ground and vision of Highest Quality Care.

Creating the burning platform amongst leadership. During a newly formed macro level, CME/CNE joint Safety and Quality meeting, the author referenced the IOM's prediction for 2020 by quoting Olen, Aisner, & McGinnis (2007): "90% of all clinical decisions will be supported by accurate, timely, and up-to-date clinical information that is supported by the best available evidence" (p. 353). The author then requested this new "forming/storming" leadership body to consider its own strategic readiness for care delivery to meet the 2020 standard predicted by IOM, specifically embracing principles of dyad partner leadership. The author encouraged the System CNE/CME assembly to consider the inter-relatedness of EBP, Quality, HRO, and Lean, as the leadership body continued to build on its Safety and Quality strategy.

Concurrently, the author met with other system CNEs to validate the need for an interlacing of work and resources. The same conversation was held with the System's first ever CNE, confirming the need for better alignment of strategic platforms and procurement of resources to promote EBP DDI. Suggested resources were a System level RN, preferably with a Doctor in Nursing Practice who would oversee EBP DDI and a System level Chief Nurse Informaticist.

Affirmation of parallel work during forming and storming. Planning the intervention of this project during this organization's System redesign required preparing the environment to consider strategies at different levels—micro, meso and macro. For this project, a majority of the resources and effort was applied at the micro level, the author's organization. The author examined its current resources and determined which elements were conducive to the desired architectural framework and most importantly, which were missing. Knowing that leaders at all levels of this System recognized the need for parallel work, the author's organization was on a solid journey for creating an architectural framework conducive to EBP DDI.

Authorization for development of architectural framework for EBP DDI. As the Chief Nurse Executive (CNE) of this organization, authorization from the Chief Executive Officer (CEO) to create an architectural framework for diffusion, dissemination and institutionalization of EBP was obtained. The goal was to utilize and enhance current resources, as well as, identify needed resources, which drive improvements in clinical outcomes.

Implementation of the Project

The project was guided through milestones that correlated to the work breakdown structure, which represented this project's core elements for EBP DDI (Appendix E) (Appendix M). Special attention was provided to change management strategies within the environment as described below, using Kotter's change management considerations (Appendix D).

Establishing a sense of urgency with frontline RNs. The April, 2015 RN Forum was utilized, as per Kotter's theory, for building a sense of urgency (Appendix D). The RNs' readiness to embrace and incorporate EBP into the environment was assessed utilizing the Advancing Research and Clinical practice through close Collaboration (ARCC) readiness survey (Appendix N). The forum was planned utilizing the results of the survey, which guided the creation of the burning platform and engagement with EBP, specifically with sepsis (Appendix 0).

Overall, the ARCC assessment revealed RNs' interest in EBP, time limitations as a barrier, and a lack of awareness of resources available within the organization. As an example, the RNs did not see there were any experts who could teach EBP, nor did they think there was a librarian present and well versed in EBP. As such the RN forum was planned so that the organization's librarian not only was introduced, but was also allotted the time to show the electronic sites with direct access to current EBP, available for all employees. In order to

heighten the frontline RNs' knowledge of the educators' clinical depth and expertise, the author arranged for professional poster boards for each of the clinical educators, highlighting their educational background, career highlights, areas of interests, and their personal thoughts about evidence-based practice.

As part of the agenda, nursing directors spoke to the IOM's 2020 goal for 80% BSN-prepared RNs in the workforce and also spoke to the professional accountability of each RN in achieving other IOM's goals, such as the Triple Aim (Institute of Medicine, 2010). In support of IOM's goals, the nursing leaders, inclusive of the author, not only availed the librarian's assistance, but also offered open support for all who were contemplating further education, especially as it came to identification of projects to complete course requirements. During this same forum, frontline nurse managers walked the talk of EBP and spoke of its applicability to the organization's challenges with the provision of safe, quality care (Appendix O).

Communicate and empower. As mentioned earlier, the preliminary results of the ARCC assessment showed that the nurses were interested in EBP and desired more information. However, they also wanted structured information and access to expertise (Lynch, 2014). The nurses also shared they needed time to learn and facilitation; both of these needs could be coordinated or provided through lead clinical educators.

A discussion of EBP and its importance had never been introduced to the RNs of this organization until April 2015. Through this forum, the nurses were allowed the opportunity to understand EBP, observe its applicability to the current state, actively discussed and identified barriers to an improved state.

The forum allowed for the heightened awareness of the clinical educators' role. A majority of the content was presented by the clinical educators, allowing for validation of

credibility and expertise in the arena of EBP, enabling them to move forward as trustworthy leaders. Concurrently, there was a heightened awareness that as RNs, they were empowered to create an environment that could move this organization to an ideal state with better patient outcomes.

Creation of guiding coalition through dyad partners. One of the work breakdown structures in this architectural framework is the dyad partnership with physicians. Creating a state of readiness, however, started with knowing physicians' perspectives and views about quality in the current environment. The assessment was accomplished utilizing surveys provided and administered by National Research Corporation. Sadly, less than 12% of the physicians who took this survey rated this organization as a best place to practice (Appendix P). Those results echoed the concerns regarding quality of care delivered and the organization's culture of safety (Appendix I).

The baseline physician engagement scores allowed for an opportunity to create an environment conducive to promotion of clinical excellence through partnership. This relationship building was planned to be an essential element in the designed architectural framework for EBP DDI. Findings from the Mayo-Clinic support the need to recognize and support physician partnerships through genuine and purposeful relationships (Swensen, Kabcenell, & Shanafelt, 2016). When jointly listening, acting and developing improvements, care delivery, physician and staff engagement were also improved (Swensen, Kabcenell, & Shanafelt, 2016). Birmingham Medicine found the same outcomes using their 3C model, which represents communication (amongst team members), comprehensiveness (of information shared between dyad partners), and collaboration (amongst physicians, other clinicians and executive team members) (Briscoe, Carlisle, & Cerfolio, 2016).

Developing a clear, shared vision through roadmap. The author met with each of the RN Dyad partners to share findings of the RN forum, work breakdown structure, and the ARCC Timeline for an EBP Implementation Project (Melnyk & Fineout-Overholt, 2015). The team leaders understood the work breakdown structure was being constructed and that its design would evolve during the implementation of their improvement projects.

Communicating the vision through daily engagement system. At the start of this project, the organization did have daily unit-based, charge nurse and manager huddles. However, messaging was not standardized nor aligned to the shared vision and strategy of the organization. The author recognized these meetings would be ideal for communicating planned changes and for creating and sustaining leadership and staff engagement.

Empowering people to act on the vision. Another piece of the framework is the Central Partnership Council, which is an interdisciplinary team whose purpose is to improve the working environment for employees and to improve the provision of care for its patients. The group is interdisciplinary and allows for creation of synergistic relationships that can make a difference if the group rallied around a clear, shared vision, such as positively affecting care delivery. To ascertain this group's readiness to feel and be empowered to affect care delivery within the organization, an evaluation was done to assess current charter and alignment with strategy. As a result of the team's input, the charter was reviewed and re-written to better align with organizational strategy and vision. Fortunately, the Council is comprised of individuals who could create a sense of urgency, create a guiding coalition, and feel empowered to act on the desired vision. A sample of the Council's 2015 baseline feedback affirmed this group's readiness to support a framework for EBP DDI (Appendix Q). Given this affirmation, the author partnered with one of the organization's Lean consultants and invited her to be part of the

Council. Throughout the design of this EBP DDI framework, the Council was introduced to concepts showing EBP, CQI, Lean, and HRO principles, the relationship among principles, and their ability to help direct positive changes for safe patient care delivery.

Institutionalizing change within the organization. At the crossroads of needed improvement, the ARCC and Kotter's change management models were utilized, not only for sepsis improvement, but also for other focused improvements, which relied heavily on the utilization of EBP DDI. This project, thus, evolved to include not only sepsis, but also, catheter associated urinary tract infection (CAUTI), Clostridium difficile infection (C. diff) and nulliparous, term, singleton, vertex (NTSV) Cesarean birth rate reduction.

Lean alignment. While the framework was being developed, the author partnered with the Lean team to experiment with daily engagement systems (DES), specifically for the daily charge nurse and all-manager huddles. A plan to align Lean, continuous quality improvement, high reliability of healthcare delivery, as well as EBP was core to the DES envisioned. The DES would be the approach to affect the culture and, hopefully, create a momentum of interdisciplinary teams committed to enhancing safe, quality care.

In order to develop an alignment of principles, the lead clinical educators of each improvement project were provided the opportunity to attend Lean training, specifically learning how to develop an A3 document. This understanding and knowledge was essential to drive the common language utilized during dyad partnership discussions.

RN professional portfolio. The RN educational baseline showed a 60% A.D.N. baseline and a group with longevity of employment; this translated to no recent exposure to formal teachings about EBP (Appendix J). While the nursing leaders' philosophy includes encouragement for continued professional growth through the organization's professional

portfolio program, it was discovered that less than 15% of its RNs participated in the program, pointing to a need to revamp and re-engage RNs towards professional growth, specifically supporting knowledge enhancement of EBP and its diffusion, dissemination and institutionalization. Responsibilities for actions and communication described above were assigned and overseen by this author (Appendix R).

Planning the Study of the Intervention

The lead sepsis clinical educator was assisted by a clinical project management expert, as well as the executive sponsor (author) to utilize the ARCC Timeline for an EBP Implementation Project (Melnyk, et al., 2015). This tool offers several checkpoints, and calls out the need for metrics. The tool also guides users to plan for team meetings to actively discuss variances and subsequent mitigation plans. As the project-management clinical expert is a team member of the Lean consultant team, merging Lean's tool for planning meetings with the ARCC model was intuitive and seamless.

Performance was monitored and benchmarked against established goals, such as, achieving 90% or > compliance with the identified care "bundles" for sepsis. Identifying sepsis patients and initiating appropriate treatment are some of what Lean identifies as "in process" metrics, which are created and identified in a Lean environment to achieve the "outcome metric" or desired goal. In the case of sepsis, a decrease in sepsis mortality became the targeted outcome (Appendix S). As previously mentioned, the author's EBP DDI framework was further refined with the introduction of other areas of needed improvement and utilization of EBP, specifically, CAUTI, C. diff, and NTSV.

Methods of evaluation. As other clinical performance areas were introduced, their respective baseline starting points were utilized to determine effectiveness of the planned

architectural framework and the work breakdown structures. Baseline status included Culture of Safety Survey by AHRQ (Appendix I); Experience of Work (EOW) survey results; clinical outcome data (Appendix C); Physician Satisfaction survey (Appendix P); ARCC readiness (Appendix N); Central partnership council survey (Appendix Q). As this project's aim was to improve EBP DDI through a specifically designed architectural framework, incorporating both Kotter's change management theory and ARCC, a conscious effort was made to determine effectiveness of interventions, not only with clinical outcomes but also with behavioral components as measured by nurses' EOW scores and the organization's Culture of Safety scores.

The author continued to guide and support elements that would positively influence EBP DDI, as it was evident that constant conversations were needed to support the conceptual framework utilized in this project. The ARCC readiness assessment tool was utilized to capture not only process-oriented resources, but also, people/relationship-driven elements. A questionnaire was developed to ask frontline staff to evaluate the effectiveness of elements built into the architectural framework for EBP DDI (Appendix T).

Analysis

Monthly and quarterly progression was being tracked for clinical metrics. However, it was discovered late into this project that the organization's physician satisfaction, employee satisfaction, and culture of safety surveys would be delayed. While these behavioral measures were not readily available for this project's analysis, other measurements were developed on Survey Monkey and utilized to analyze change in culture. Those results are discussed in the next section describing program evaluation and outcomes.

Section IV: Results

Program Evaluation /Outcomes

Macro level strategy. At the macro level, the author was able to affect consideration and development of architectural design elements at the System level. As a result of the System CNE's observations and validation of need, a Director of Professional Practice and Nursing Excellence position has been created and posted on June 2016, with one of the primary goals being EBP DDI (Appendix U). As well, the Chief Nursing Informatics Officer has also been created, which replicates some major structures in this author's architectural framework, designed at the micro level, with the intent of influencing meso and macro infrastructure, aligning with having the intent of creating "multiple strategies and multiple levels" (Gallagher-Ford, 2014).

Meso level strategy. At the meso level, the chairs of the regional CME/CNE created dyad partnerships to expedite and influence uptake of EBP for various clinical initiatives, such as CAUTI and C. diff reduction, as well as, reduction of cesarean sections on nulliparous, term, singleton, and vertex (NTSV) deliveries. As mentioned earlier, the System's redesign presented new roles and responsibilities during the implementation of this project; and at the end of this project implementation, the environment started changing from a state of "storming" to "norming" and "performing" (Appendix L), with agendas embracing and practicing with a dyad philosophy. The author was afforded the opportunity to be the dyad partner with the organization's CME, leading the System's operating unit with CAUTI reduction. Through this process, the opportunity to link micro, meso, and macro level ideas for infusing EBP DDI. Through this work, closing the research-to-practice gap was expedited, and due to the success of rapid adoption of EBP, the System's operating unit Chief of Staff will be adopting the same architectural framework and approach for 2017 clinical improvements.

Notably, the 2016 work of the System's operating CME/CNE dyad partnership was submitted for consideration as a best practice for 2016's Health Quality Improvement conference. While not selected as the winner for innovation, the group received honorable mention and was selected for poster board discussion and presentation.

Micro level strategy. At the micro level the architectural framework was in constant evolution with Plan, Do, Study, Act (PDSA) cycles, with learned lessons from sepsis, NTSV, and CAUTI and C Diff reduction improvement projects. The intervention planned, a structured architectural framework for EBP DDI, is showing improved outcomes (Appendix V).

The cultural climate also underwent some positive changes, especially relate to implementation of Kotter's theory of change management as discussed below.

Physician engagement. Formerly, only 12% of physicians rated this organization as a best place to practice. While there is not an exact query from the same NRC physician satisfaction survey available at this time, a qualitative survey was conducted in September 2016 with the physicians who were selected as dyad partners. These same physicians were involved in planning meetings with the RN clinical leaders to help strategize and drive needed improvements. Approximately 80% of the physicians involved in dyad partnerships believed there was mutual respect and a shared ownership to improve quality and safety (Appendix W).

Interdisciplinary partnership council. The Central Interdisciplinary Council changed its charter and shifted its work and focus, aligning their efforts to the strategies and priorities of the organization. During this project implementation, the focus was on building awareness of EBP and aligning their efforts to making improvements in clinical initiatives. This work is still in progress, helping this group to understand the synergistic relationships between HRO principles, Lean, CQI, and EBP. While baseline results show that 82% of council members felt their

worked aligned to organizational strategies and priorities, over the course of this project that engagement has grown to 91%. As well, 90% of the council members felt they now have a better understanding and awareness about EBP, which increased from the baseline of approximately 30% acknowledging an understanding of EBP (Appendix W).

RNs' readiness for EBP. The *Organizational Culture & Readiness for System Wide Integration of Evidence-based Practice Survey* (Melnyk & Fineout-Overholt, 2015)(Appendix N) was utilized during April 2015 to establish this organization's baseline of its RNs' readiness for EBP. Due to the fact that the organization had several, different surveys scheduled in 2016, the author was limited to a shortened timeframe during October 2016 for a repeat EBP readiness survey. As such, the author chose to utilize four queries from the *Organizational Culture & Readiness for System Wide Integration of Evidence-based Practice Survey* (Melnyk & Fineout-Overholt, 2015). The 2016 results showed a positive change in cultural readiness for EBP integration (Appendix X). The organization's RNs believing that they have access to EBP moved from a baseline score of 70% to 90% positive. As well, the belief that the organization's body of nursing is committed to EBP improved from baseline of 65% to 80%. From the author's perspective, this also translates to a respectful change management process, in alignment with Kotter's change management theory.

Culture of safety. This particular survey by AHRQ has been delayed and is in process at the time of completing this project and as such results are not readily available. However, the last survey was accomplished during the last quarter of 2015, which was approximately ten months into some of this project's interventions. A comparison of end of 2014 to end of 2015 was analyzed using the 12 dimensions found in the AHRQ Culture of Safety Survey. Of

significance is a positive shift with staff feeling the organization is committed to continuous improvement (Appendix Y).

Each opportunity for clinical improvement provided an opportunity to refine the architectural framework and reinforced the importance of joining process/policy with proper change management and sustainment. The latter, helped to build and positively affect the culture as seen by results (Appendices W, X, and Y).

Sepsis. At the start of the project, the author spoke with the clinical educator of the Emergency Department, who dually accepted the responsibility of being the sepsis champion. With this role, the ARCC framework and Kotter's change management model were shared. The idea of project managing the goal towards sepsis mortality reduction was also reviewed with this educator (Appendix E). As well, the Lean consultant partnered with the sepsis clinical dyad partners, facilitating the infusion of EBP, CQI, Lean, and HRO principles.

One of the biggest changes at the micro level came within the organization's Safety and Quality Committee. In the past, these types of improvement projects were part of consent agendas and often lost their value and meaning. Through the author's influence and discussion with the Chief of Staff and the Chair of Safety/Quality, the sepsis team presented their outcomes to several medical staff and leadership forums, heightening the awareness, and most importantly, spurring engagement and discussion about how to improve individual and group performance. As the assigned executive sponsor of several quality initiatives, the author realized the importance of having the nurse and physician dyad partners jointly presenting their work to various medical staff groups. Consequently, scheduling dyad partner presentations into targeted medical staff meetings was entered as a crucial work breakdown structure of this author's EBP DDI framework (Appendix E).

As well, the organization's sepsis guiding coalition identified the opportunity to impact outcomes by identifying sepsis earlier. Subsequently, improvement efforts included involvement of the Emergency Medical System (EMS) and Skilled Nursing Facilities (SNFs) who were provided training on early sepsis identification and intervention. The achievement of a 10.4% mortality rate for September 2016 is an indication of the EBP DDI framework's effectiveness.

***CAUTI reduction*.** As mentioned earlier, the System was in a state of organizational redesign. With this particular targeted improvement, the System office reached out directly to the infection preventionist to lead CAUTI reduction within the organization. Without the communication and infrastructure for success, results remained stagnant. Through inquiry, the author discovered the System's assignment and reached out to the infection preventionist to identify any work that had been accomplished such as changes in documentation screens, attendance at medical staff meetings, executive sponsor, equipment changes, or education planned (Appendix E). None had been planned and provided an opportunity to test the EBP DDI framework. However, it was already past the first quarter of 2016 and engagement needed to be swift and effective.

With collaboration with the infection preventionist, the author encouraged development of a team who could be the guiding coalition for CAUTI reduction (Appendix D). Since the reduction was specifically measuring Intensive Care Unit CAUTI, the author suggested and facilitated the identification of dyad leader partners, specifically the ICU manager and the ICU medical director. Given the expedited and shortened timeframe for targeted improvement, the author tested a new component of the work breakdown structure, adding the daily engagement huddles and visual management tools, which helped to gauge the effectiveness of the team's plans.

While the dyad partners created clinical education tools, making sure the information for CAUTI prevention and reduction was actually implemented was dependent on the nurse leaders' ability to communicate and affect the change. During the daily manager huddle and with the intent of immediate impact, the dyad leaders asked each nursing unit for several leading indicators. These leading indicators were number of foley catheters inserted in the last 24 hours; reason for insertion; number of those foley catheters present greater than two days; and, rationale for foley catheters remaining on patients greater than two days.

Through this process and daily engagement, there were discussions about barriers and needed resources, which were immediately addressed. Through perseverance of this process, the leadership team saw changes (Appendix V).

The dyad partnership also developed and worked with their guiding coalition, who helped to communicate the vision and create short term wins. When the organization reached 100 CAUTI-free days, recognition treats were provided to each unit. The team also created their engagement slogan of, "Don't be naughty; prevent a CAUTI".

The team integrated Lean concepts, developing its A3, keeping its focus to three impact areas—insertion, maintenance, and removal. Education and resources were planned around this team's focus areas. As an example, the team identified a shortage of bladder scanners, which were needed to measure and identify urinary retention. Without this resource, catheters could be erroneously inserted based on subjective versus objective criteria. Education on maintenance was not only provided to nursing, but also to ancillary and support staff who handle catheters during procedures or transport. This team involved the clinical informaticist and was able to affect changes at the System level, not only with nursing, but also physician documentation and ordering screens. Involving a clinical informaticist as a component of the work breakdown

structure for EBP DDI was key not only for reduction in CAUTI, but also sepsis improvements. Making it easy to drive clinical decisions at the point of care was facilitated through changes in the electronic documentation fields.

NTSV C-section reduction. This group was also lead by a dyad partnership of an Obstetrics/Gynecological (OB/GYN) physician and a Labor & Delivery nurse leader. This group developed policy and procedures to prevent unnecessary C-sections. These policies and procedures are equivalent to the terminology of "standard work" in the Lean environment. These same policies included HRO principles of raising clinical care concerns and escalating them to the appropriate authority. In this case, if an RN felt a C-section would be inappropriate and the physician did not concur, the RN escalated the concern directly to the OB/GYN chair. This process was discussed upfront with the stakeholders as part of the education plan (Appendix E). Subsequently, the department has been able to impact the reduction of clinically, unnecessary C-sections (Appendix V).

***C. diff. reduction*.** This area of clinical improvement is the latest focus area utilizing the EBP DDI framework and is experiencing a downward trend in the number of patients identified with C. Diff (Appendix V). While introducing this needed clinical improvement and its EBP, all nursing leaders realized the need for constant engagement and reinforcement of knowledge, not only for C. diff but also for all other recently introduced clinical practice guidelines as supported by EBP. To that end, the dyad partnerships and their respective coalitions coordinated and planned the Summer 2016, Mini-Series of Evidence-Based Practices (Appendix Z). The mini-series afforded the opportunity to introduce and reinforce knowledge and practice changes.

Section V: Discussion

Summary

Completing this project held true to Gallagher-Ford's (2014) philosophy of needing multiple strategies at multiple levels. The framework adapted nimbly to resources readily available, especially given some of the challenges experienced during the implementation of this project, such as the two reductions in force, budget limitations, and a tumultuous labor environment.

Relation to Other Evidence

Implementation science. At the beginning of this project and review of evidence, the author started with the use of a facilitator/educator to promote EBP, along with the conceptual framework of Kotter and ARCC. When reviewing recent literature and evidence, what is emerging is implementation science. Implementation science is the "study of methods to promote the integration of evidence into practice and health care policy within real-world public health and clinical service settings" (National Institutes of Health, 2016, p. 1). Through this project, the author's intervention recognized and took into consideration provision of resources, project management and change management, and ultimately, the architectural framework was successful for integration of evidence into practice. However, as healthcare faces the need to close the gap between research and practice, the science of implementing EBP undoubtedly will be a needed catalyst.

Quadruple aim. Thoughts in emerging literature also point to a correlation with caregivers' engagement to their professional work. This phenomenon is referred to the "Quadruple Aim", in other words, the fourth aim of IOM's Triple Aim. What is unique about the Quadruple Aim is its elevation of the importance of creating joy and meaning of work, which is related to this project's focus on creating and sustaining a culture of engagement (Sikka, Morath, & Leape, 2015). These authors contend that when the workforce has a sense of

importance of daily work, it provides for meaningful work. Joy is felt in the workplace with observation and feeling of success (Sikka, Morath, & Leape, 2015).

This project was conducted with very limited financial resources. Through this author's observation of cultural changes described herein, undoubtedly, this project's success ran on the fuel of "joy and meaning" which created the engagement necessary to achieve its results.

Barriers to Implementation/Limitations/Mitigation:

Affordability challenges. As 2015 came to a close, the author's organization ended short of its targeted budget. With this project being contemplated, the 2016 budget was finalized with some of the proposed elements, namely the additional clinical educators and project manager, eliminated from the budget. Educational hours were also reduced from the operating budget, making it unfeasible to plan one or two RN forums during the end of 2015 and all of 2016. The teams, however, were resourceful with their respective Summer 2016 mini-series, creatively engaging the frontline staff with their eye-catching posters and events.

Macro, meso, micro organizational dynamics. As previously mentioned, the organization and its System continues to evolve into its structural and leadership changes, necessitating discussions about Lean, CQI, EBP, and HRO and inter-relatedness with common goals, such as delivery of error-free care. Having "common language" conversations at the leadership level was necessary to assure resources needed for planned EBP introductions. Adequately addressing resources for support of EBP DDI was necessary to address organizational cultural concerns. Starting within the author's immediate area of influence was the approach for variance control within the organization. As a result, one of the knowledgeable and influential resources attained was the assignment of one of the Lean coaches to the targeted improvement projects, such as sepsis, CAUTI reduction, and C. diff. This same Lean coach was

also resourceful with project management. Her expertise aligned with the EBP DDI framework being designed, specifically with merging Lean, CQI, EBP, and HRO principles.

Labor tensions. Externally, California Nurses' Association (C.N.A.) continued to campaign in an attempt to unionize the registered nurses at this organization through October 2015. This tension had been in this organization's environment for at least four years, culminating with a vote in 2014, which favored management representation. Subsequently, the National Labor Relations Board (NLRB) upheld four out of 30 objections filed by the union, overturning the organization's pro-management vote, re-opening the campaign and election tension (Appendix AA). The organization and the NLRB requested for an expeditious vote, which would have been scheduled early October 2015; days prior to the election, however, C.N.A withdrew its petition. Given NLRB guidelines, the organization was to remain free from C.N.A campaigning for at least six months from October 2015. Although free from further C.N.A petitions, the organization was not free from the turmoil created by C.N.A supporters. From this perspective, C.N.A. was an external threat distracting the focus on a common urgency to improve sepsis and other patient care outcomes. That distraction created an internal threat through the tension generated between pro-management and pro-labor nurses. Pro-labor nurses vividly wore the traditional C.N.A red and the pro-management team openly wore green. As both parties openly displayed who and what they supported, they practiced their free speech rights right in front of the hospital entrance created further tension. This tension was an impactful threat for this organization, especially as it awaited further moves and demands from C.N.A.

Until October 2015, the organization remained in what is termed "laboratory conditions", where it could not change many of its operational practices, even if it was necessary for business

needs. As an example, RN salary needed to be adjusted in order to be competitive in the marketplace. With an inability to change pay practices, the organization was crippled with its ability to recruit, which directly eroded staff confidence in leadership's ability to support the frontline.

Marketplace competiveness was immediately addressed after the National Labor Relations Board lifted laboratory conditions. The organization's RNs were provided a 2.5% increase on November 1, 2015, a 3% market adjustment on 7/26/2015 and a 5% adjustment on 7/24/2016. These adjustments were separate from the RNs' individual performance annual merit increases. Beyond the mitigation steps mentioned to address wage competiveness, other communication plans were developed, responsive to the ever-changing internal and external environment.

Strengths, weaknesses, opportunities and threats. In evaluating readiness to make effective changes with sepsis, the internal environment presented itself with strengths (Appendix BB). One such strength was the newly developed physician/administrative team dyad partnerships. These dyad partnerships were strategically assigned to facilitate focus on common challenges and priorities, such as quality. This author was aligned with the newly hired Chief Medical Executive (CME). This newly formed partnership was a vital, influential component of the work breakdown structure and was essential for building the culture of physician/nurse dyad partnerships.

As a first for the organization's administrative team, a meeting was conducted to create its one, three, and five-year strategic plan. During this meeting, the author was afforded an opportunity to present the IOM's (2013) recommendation and vision for 2020; and as a result of that presentation, the author was assigned strategy development for quality improvements. With

this assignment, there was a solid foundation for prioritizing EBP DDI and supporting its work through the CNE/CME dyad partnership.

Internally, there were other strengths considered such as the fact that the administrative team was a "young" visionary team, having tenure of approximately three years, with its newest member being on the team for 14 days at the start of this project. While the team was "young" in its executive appointments, there was also a solid foundation of organizational tenure amongst its current leaders. Some of the executives have been with the organization for 25 years, affording it the ability to read the environment and provide historical context to planned concepts.

Externally to the author's own organization, but internally within the System, a new, first ever System CNE was hired. This author has been able to discuss the direction and intent of this project with the System CNE, who concurred with the need for an integrated platform for EBP DDI and observed that one was lacking in the current state.

Perhaps the most significant strength when considering ability to successfully implement DDI EBP within the author's organization is the bench strength of the existing clinical educators and nurse leaders. These clinical educators and nursing leaders are varied in role and assignment, with some being unit-based and others being regionally assigned to serve not only this organization but also two other hospitals and a medical foundation. Given the recent redesign of the system and the unrest caused by the movement of going from five regions down to two, providing this specific team with a common sense of urgency, such as sepsis, brought them together as a team. This was most evident during the planned charge nurse forum, where the clinical educators and nurse leaders were highlighted and integrated into the presentations, with the theme, "Empowering Us Into the Future".

Finally, the catalyst strength in this project was the Lean coach, who is also an RN by background and currently working on a project management certification. The ability to merge CQI, EBP, Lean, and HRO principles was seamlessly orchestrated through this individual's project management capabilities.

Interpretation

Almost two years later, there has been a difference, through influence and perseverance; EBP has been infused into the discussion of Lean, HRO, and CQI. It took time to change the culture and much of this relied on the perseverance, authenticity, and creativity of the nursing leaders and educators, who subsequently shaped and influenced each of their frontline team members, one interaction at a time.

Perseverance was an aptitude developed and strengthened by this core team. When affordability challenges clashed with resources needed for quality improvement projects, this team creatively utilized existing resources, modifying them to meet the desired need. As an example, instead of a forum, the team created the drop-in Summer 2016 Mini Series and utilized daily engagement venues to sustain frontline interest.

When the author's and core nursing leadership team's character and intent were challenged during this two year project, especially with the labor tension and inability to offer competitive wages during the C.N.A. campaign, perseverance was accompanied by authentic leadership, which involved taking Kotter's change management theory to heart with every improvement project, and again, with every interaction.

After reflection of this two-year project, the author personally interprets that the outcome, not only required an architectural framework, but also required perseverance, authenticity, creativity, and a strong nursing leadership team. Timing was serendipitous when this same team

was afforded the opportunity to work jointly with an impromptu project manager who happened to also be an expert with Lean, PI, and project management.

The Future of Nursing (Institute of Medicine, 2010) call for action includes the key recommendation of improving the health of the US population, specifically via the impact nurses can make to the delivery of safe, quality care (Institute of Medicine, 2010). Due to the sheer number of nurses who are directly present at patients' bedsides, this can be done through diffusion, dissemination, and institutionalization of EBP, as shown by the outcomes of this project. And, given the outcome of this project, nursing leaders should consider an architectural framework, inclusive of a clinical educational leader with a solid project management foundation.

As well, many healthcare environments are turning to Lean methodologies and/or HRO principles to impact quality and safety. Through this project, the author recommends finding common vernacular and goals to create the synergy needed to successfully affect the necessary and desired change.

Conclusions

Much like any architectural project, internal and external factors forced the initial structure to be fluid to changes and demands. Although the results of this project are positive in regards to culture and clinical outcomes, the author and the rest of the nursing leadership team will constantly be evaluating and improving the infrastructure—a necessary position, given the constant introduction of EBP and the challenges of internal and external environments.

In conclusion, the author's architectural framework will be continuously evaluated to assure its foundational resources are sufficient and that it is constantly evaluated for joy and meaning of work. In Lean terminology, it is not enough to rely on policy, procedures, or

standard work, if we are to expect continuous improvement. The author offers the conclusion that the former will lead to an environment with entropy and the latter would create the necessary energy to engage clinicians to constantly seek the next level of "best"(Appendix CC).

As such, the author will continue the work accomplished with the local nursing schools and promote A.D.N to B.S.N articulation programs, closing its gap towards the 80% BSN goal. To continue to engage and promote professional growth, the RN Professional Portfolio program within the organization will be updated to encourage attainment of professional clinical certification and education. Finally to promote joy and meaning, the author along with the rest of the nursing leadership team, will end 2016 by creating its first nursing annual report, highlighting this year's accomplishment…a reflection of joy and meaning through adoption of evidence-based practice.

Section VI: Other Information

Funding

Return on investment. Shortened length of stay (LOS) in the ICU and overall organizational Medicare LOS decreased with planned clinical improvements guided by this architectural framework. Given the annualized patients who are admitted into the ICU and impacted by the focused improvements in this project, return on investment during this project is approximately $7.5 million, based on cost avoidance calculations with reduced length of stay and required interventions (Appendix DD).

Budget. The framework designed an educator who oversaw the project and change management inherent with clinical improvements that cross several disciplines and departments. As mentioned earlier, budget constraints did not allow for those positions to be recruited and filled. Rather, clinical educators and leaders absorbed the EBP DDI leadership responsibilities

within their current roles. There were costs for the early 2015 RN forum, team meetings, summer 2016 mini-series and the costs for clinical educators', leaders', and author's time (Appendix DD). Given the calculated costs for this framework to be approximately $500,000 and a cost avoidance of approximately $7.5 million as calculated above, the return on investment is fiscally prudent. Given the number of lives saved, preliminary enhancement of physician and staff engagement and the clinical outcome improvements, the return on investment on this project has been profound as well as professionally rewarding.

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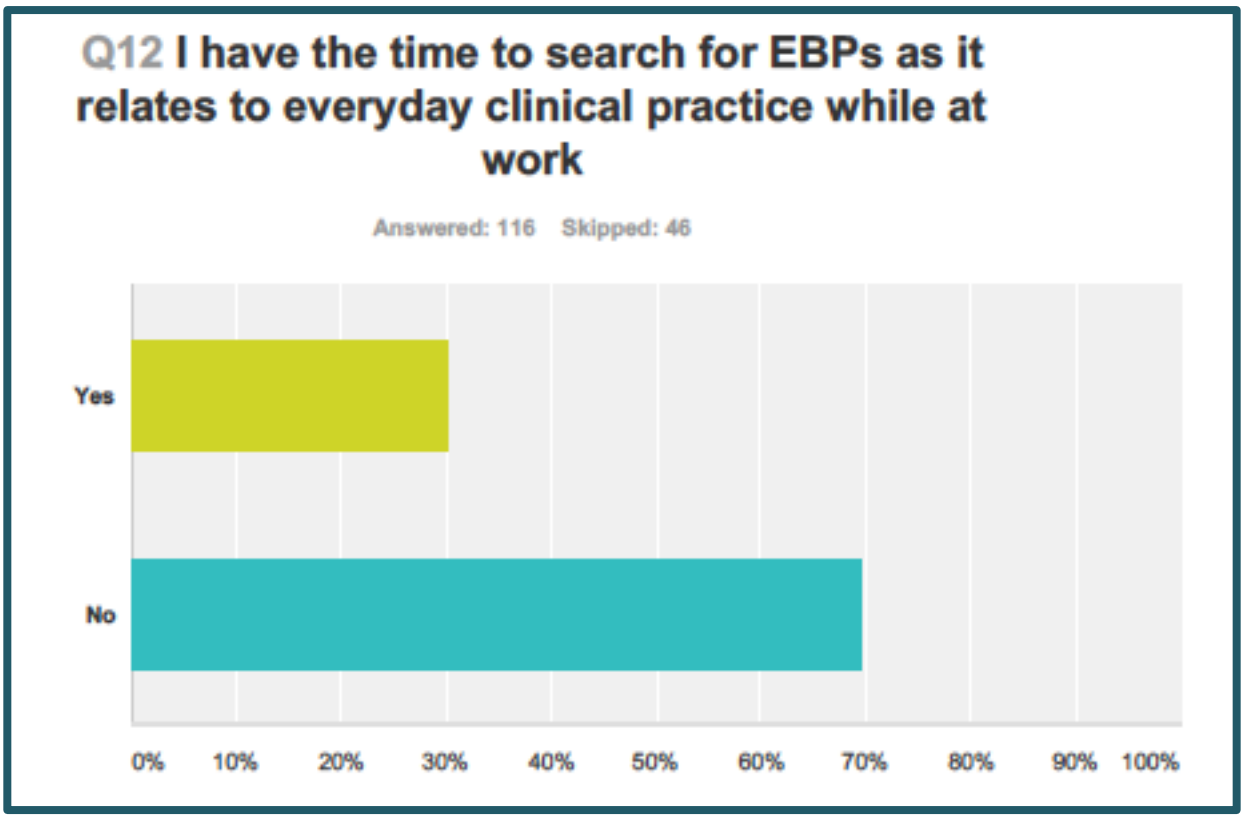
Appendix A

Organization's RN Baseline Results--Readiness for Evidence-Based Practice Adoption, 2015



Source: Lynch, T. (2015). Memorial Medical Center nurses evidence-based practice readiness assessment. Evidence, engagement and empowerment: Memorial Medical Center's nursing forum--I'm a nurse; what's your super powers? (B. Lopez, L. Quintero, & S. Camarillo, Eds.) Modesto, CA, USA: Memorial Medical Center.

Appendix B
US Health Ranking and Cost Comparisons

EXHIBIT 2. 11-NATION SUMMARY SCORES ON HEALTH SYSTEM PERFORMANCE

	AUS	CAN	FRA	GER	NETH	NZ	NOR	SWE	SWIZ	UK	US
OVERALL RANKING	**4**	**10**	**9**	**5**	**5**	**7**	**7**	**3**	**2**	**1**	**11**
Quality Care	**2**	**9**	**8**	**7**	**5**	**4**	**11**	**10**	**3**	**1**	**5**
Effective Care	4	7	9	6	5	2	11	10	8	1	3
Safe Care	3	10	2	6	7	9	11	5	4	1	7
Coordinated Care	4	8	9	10	5	2	7	11	3	1	6
Patient-Centered Care	5	8	10	7	3	6	11	9	2	1	4
Access	**8**	**9**	**11**	**2**	**4**	**7**	**6**	**4**	**2**	**1**	**9**
Cost-Related Access Problems	9	5	10	4	8	6	3	1	7	1	11
Timeliness of Care	6	11	10	4	2	7	8	9	1	3	5
Efficiency	**4**	**10**	**8**	**9**	**7**	**3**	**4**	**2**	**6**	**1**	**11**
Equity	**5**	**9**	**7**	**4**	**8**	**10**	**6**	**1**	**2**	**2**	**11**
Healthy Lives	**4**	**8**	**1**	**7**	**5**	**9**	**6**	**2**	**3**	**10**	**11**

Source: Davis, K., Stremikis, K., Squires, D., & Schoen, C. (2014, June). *2014 update: mirror, mirror on the wall--how the performance of the US healthcare system compares internationally.* The Commonwealth Fund: commonwealthfund.org

Appendix C
Organization's Year-End Quality Metrics Results

Quality Metrics

Metric	2011 YE	2012 YE	1Q13	2Q13	3Q13	4Q13	2013 YE	1Q14	2Q14	3Q14	Oct 2014	Nov 2014	Dec 2014	4Q14	2014 YE	Target	Threshold
Heart Attack (AMI) Composite	98.2%	97.8%	100%	100%	100%	100%	100%	100%	100%	100%	100%	NP	83.3%	90.9%	97.9%	100%	97.0%
Pneumonia & Global Influenza Immunization Composite	IMM-2 began in 012	91.9%	100%	100%	100%	99.3%	99.7%	100%	97.1%	100%	100%	100%	100%	100%	99.9%	99.9%	93.8%
Surgical Care Improvement Composite	97.6%	99.5%	99.8%	99.8%	99.5%	99.5%	99.7%	99.7%	99.0%	100%	99.3%	99.5%	99.5%	99.4%	99.5%	99.8%	98.0%
Acute Care Admission Mortality Ratio (Observed/Expected)	1.0	1.1	1.3	1.0	1.1	1.0	1.1	0.9	0.9	0.9	0.9	1.3	0.8	1.0	0.9	1.0	1.0
Combined Severe Sepsis & Septic Shock Mortality Rate	27.7%	28.8%	34.8%	26.8%	23.8%	28.9%	29.0%	20.9%	21.7%	22.8%	17.8%	28.8%	20.5%	22.2%	21.9%	18.8%	24.9%
Elective Delivery < 39 Weeks	13.2%	3.3%	2.8%	0%	0%	0%	0.5%	2.8%	0%	3.4%	0%	0%	0%	0%	1.6%	0%	4.0%
Heart Failure Readmissions within 30 Days	23.5%	21.1%	25.9%	12.3%	22.1%	15.3%	19.0%	21.8%	19.0%	15.0%	11.4%	26.5%	12.5%	17.1%	18.4%	13.2%	16.6%
Heart Attack (AMI) Readmissions within 30 Days	14.8%	11.0%	8.7%	11.7%	11.5%	12.7%	11.1%	9.7%	7.3%	7.8%	17.1%	7.4%	8.5%	11.0%	8.9%	7.1%	9.8%
Pneumonia Readmissions within 30 Days	13.9%	14.7%	14.0%	16.1%	21.1%	16.3%	16.1%	10.1%	15.3%	12.5%	12.5%	9.1%	15.8%	12.6%	12.3%	8.8%	11.8%
Hospital Acquired Condition Summary Measure	1.402	1.533	1.750	0.779	0.810	1.314	1.172	2.962	1.347	1.340	2.498	3.490	1.705	2.557	2.044	0	1.462

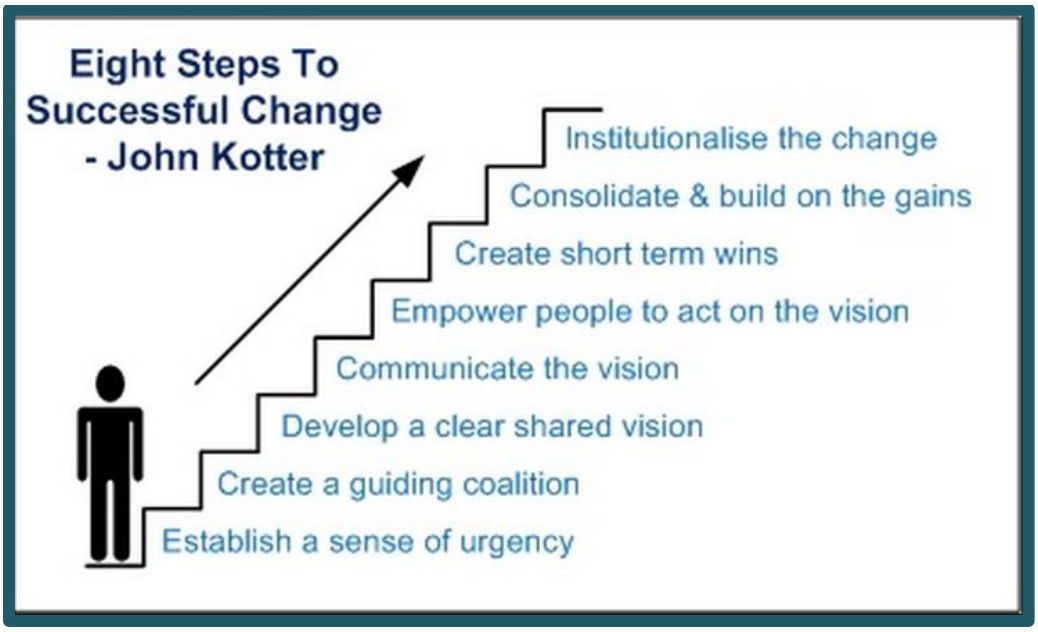
Top Decile Performance

Above / Below National Average

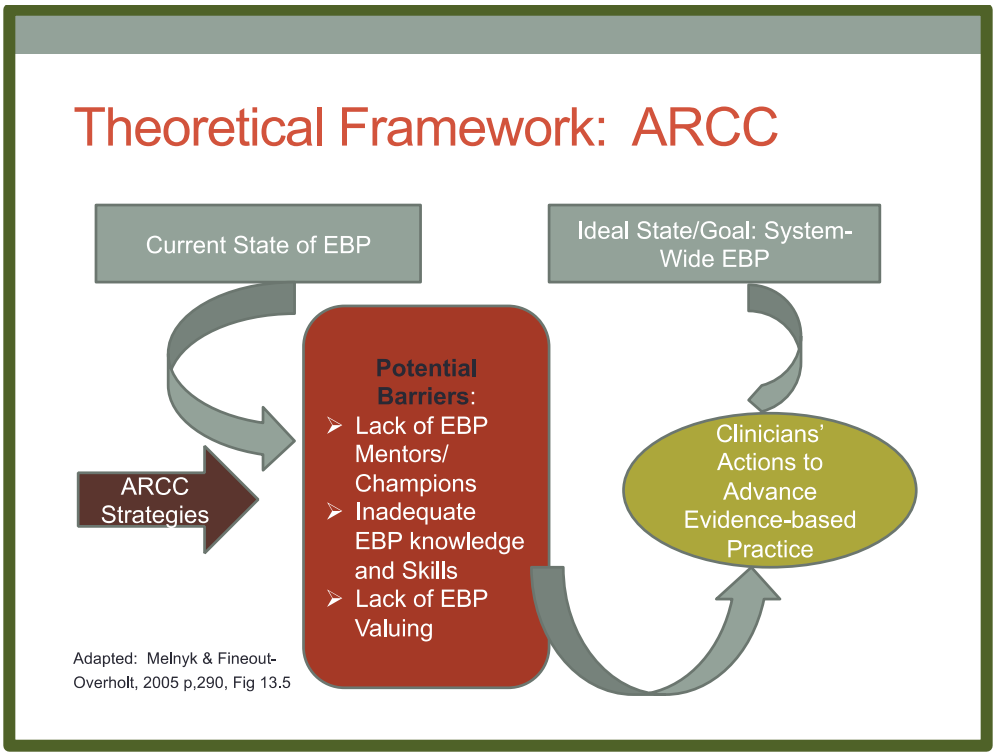
2014 Entity Performance Threshold: 3 of 10 measures at target; no more than 3 measures below average.
2014 Entity Full Performance: 4 of 10 measures at target; no more than 2 measures below average.
99% Rule: If target is 99% or 100%, performance >= 99% will be counted as meeting target.
For results to count toward the 2014 Executive Dashboard, VBP measures must have >= 10 cases; Readmissions must have >= 25 cases.

Appendix D

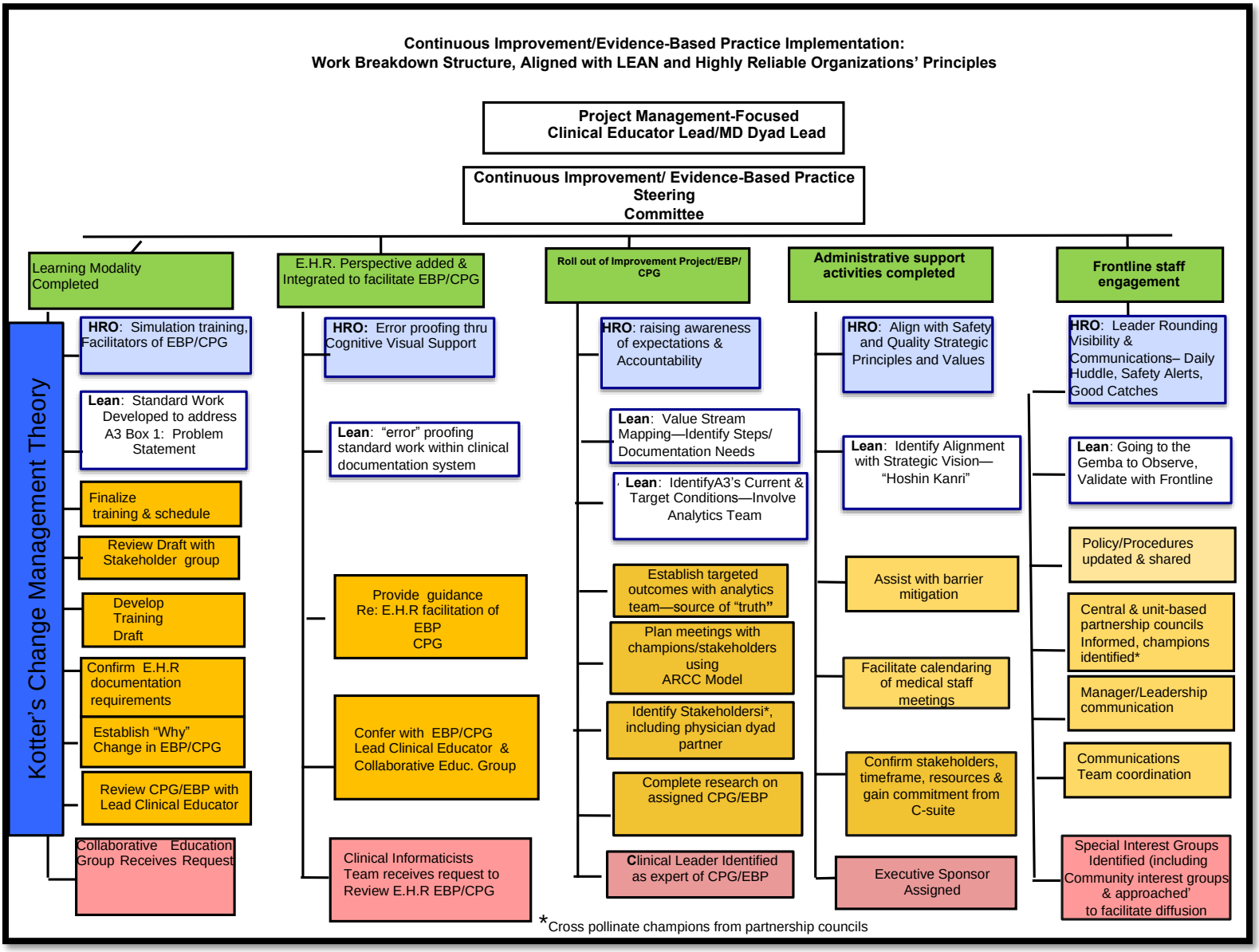
Conceptual Framework: Kotter's Theoretical Framework and Advancing Research and Clinical Practice through Close Collaboration (ARCC) Theoretical Framework



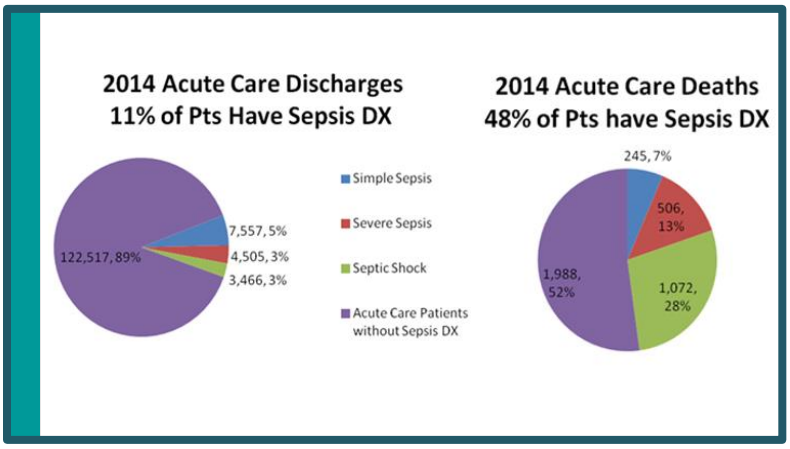
Source: https://tie575changemodel.wikispaces.com/Kotter%27s+8-step+model



Appendix E
An Architectural Framework EBP DDI, Work Breakdown Structure



Appendix F
Sepsis, Number One Reason for Cause of Death at Author's Organization; Highest Number of Sepsis Patients in System



Facility Table
Feb 2014 to Jan 2015
Target=18.75 Alarm=24.93

Target Status	Numerator	Denominator	Percent
	34	121	28.1%
	217	952	22.8%
	171	756	22.6%
	143	636	22.5%
	208	967	21.5%
	39	189	20.6%
	111	539	20.6%
	132	689	19.2%
	51	268	19.0%
	123	690	17.8%
	112	688	16.3%
	66	429	15.4%
	12	85	14.1%
	16	114	14.0%
	28	201	13.9%
	19	138	13.8%
	26	191	13.6%
	19	163	11.7%
	15	162	9.3%
	6	66	9.1%
	1	11	9.1%
	5	57	8.8%
	1554	8112	19.2%

Appendix G
Evaluation Table

Author, Title (Year)	Conceptual Framework	Design/ Method	Sample / Setting	Major Variables Studied and Their Definitions	Measure-ment	Data Analysis	Findings	Appraisal: Worth to Practice; Level (L); Quality (Q)
Gerrish, The role of APN in knowledge brokering as a means of promoting EBP among clinical nurses, 2011	n/a	Qualitative Study AIM: To identify approaches used by APN to promote EBP among RNs in 2006	23 APNs from hospital and clinical settings across England	Knowledge management =generating evidence, accumulating evidence, synthesizing evidence, translating evidence, interpreting and distilling, disseminating evidence	Observation and survey	Thematic coding analysis	APNs saw knowledge management as key role (generating, accumulating, synthesizing, translating, disseminating)	APNs clinical expertise and credibility with CNs mean they are uniquely placed to facilitate the link between evidence and practice L: III Q: Good

Author, Title (Year)	Conceptual Framework	Design/ Method	Sample / Setting	Major Variables Studied and Their Definitions	Measure-ment	Data Analysis	Findings	Appraisal: Worth to Practice; Level (L); Quality (Q)
Thorsteinsson, 2013 Readiness for and predictors of EBP of acute-care nurses: cross-sectional postal survey	ARCC	Qualitative Study AIM: to describe nurses' readiness for EBP as measured by 1)their information needs, 2)skills in using electronic All bibliographic database and 3.awareness of available resources	546 Acute care RNs	Readiness for EBP as measured by Icelandic Information Literacy for Nursing Practice And EBP beliefs as measured by Icelandic EBP Beliefs scale	Cross-sectional survey, consecutive sample, with response rate of 64.3%, 298 RNs and 45 nursing admin	Descriptive statistics used to describe readiness, frequency of EBP activities & beliefs. Logistic regression analyses to identify predictors	Odds ratio (OR) for EBP skills rated 1.484 in its positive association with information seeking; 1.997 for its positive association with evaluating research; and 1.253 for its positive association with using research. 3 independent variables contributed significantly (at p< .05) towards EBP beliefs. Those were EBD skills (p <. 001), Discussions about EBP (p<. 001) and Familiarity with EBP (p< .037).	All 3 activities predicted use of EBP; strategies should focus on influencing EBP by increasing skills, discussion and familiarity with EBP. L: II Q: High
Melnyk, Fineout-Overholt 2012 The state of EBP in US Nurses	ARCC	Descriptive survey sent with AIM: Assess the perception of EBP among RNs in the US	20,000 ANA RNs, return rate, 5%	18 5-point Likert-scale items, capturing current state of EBP use and current needs. 10/18 items from EBP Beliefs Scale and EBP Implementation Scale	Survey	Mean scores for all 18 items scored 1-5	EBP mentors were available to only 32.5% of the respondents, yet 76.2% of these same respondents agreed/strongly agreed that they needed education and skills building in EBP. Respondents also shared they needed/strongly	Heightens the awareness of current state, reminds nursing leadership of the call for 2020, the short timeframe, and the need to place an

Author, Title (Year)	Conceptual Framework	Design/ Method	Sample / Setting	Major Variables Studied and Their Definitions	Measure-ment	Data Analysis	Findings	Appraisal: Worth to Practice; Level (L); Quality (Q)
							needed access to an EBP mentor (n=690, 68%). More non-masters prepared nurses found it to be important to gain more knowledge and skills (P < .001) and they were interested in enhancing their knowledge and skills in EBP (P < .001).	effective diffusion framework L :III Q: High
Milner et al, Research utilization and clinical educators: a systematic review 2006	Promoting Action on Research Implementation in Health Services (PARIHS)	AIM: report findings of systematic review re: clinical nurse educators and research utilization	Range from 24-507	Using PARIHS as a framework, successful research implementation is explained by a function of the relationship between 3 elements—nature of evidence being used; the quality of the context; and the type of facilitation needed to ensure a successful change process	Clinical Nurse Educators and Research Utilization Systematic Research Overview (2004) Quality Assessment Tool for Descriptive Studies And Quality Assessment Tool for Correlational Studies	Clinical educators with higher levels of education report increased comfort with use of research findings	not all clinical educators had the skill of critical analysis, essential for the review and application of EBP. Defined in literature as "intermediaries"	Noting that not all educators are equal, matching educators to purpose, role and skills/attributes to the EBP situation would be critical L: II Q: High

Author, Title (Year)	Conceptual Framework	Design/ Method	Sample / Setting	Major Variables Studied and Their Definitions	Measure-ment	Data Analysis	Findings	Appraisal: Worth to Practice; Level (L); Quality (Q)
					And Validity Assessment Tool Qualitative Studies			
Hauck, et al **Leadership facilitation strategies to establish EBP in an acute care hospital 2012**	n/a	Prospective, descriptive comparative AIM: assess the impact of leadership facilitation strategies on nurses' beliefs of the importance & frequency of using evidence in daily nursing practice and the perception of organizational	Acute care hospital, Midwest USA N=427 in 2008 N=469 in 2010	7 strategies as developed by the hospitals Nursing Research/ EBP Committee	Three surveys developed by Melnyk & Fineout-Overholt (2014) were used to collect data; a) Evidence-Based Practice Beliefs Scale b) Evidence-Base Practice Implementation Scale (EBP-I) and c) Organizational Culture & Readiness for System-Wide Integration of Evidence-based Practice Survey (OCRS-C).	When evaluating the overall strategy and its impact on the frequency of using EBP, the total group scores of (0.64 (0.69) vs. 0.73 (0.68); F (1, 900) = 3.5, P = 0.061). These results reflect a 14% increase in EBP use by staff in a two year-period; the goal was to achieve an 8% increase, as measured by the EBP-I scale. This same study evaluated the impact of the strategy plan on organizational culture and readiness, yielding a 19% increase with the OCRS-C	Leadership facilitated infrastructure development in three major areas: incorporating EBP outcomes in strategic plan; supporting mentors; advocating for resources for education and outcome dissemination	pointed to the need to assess leadership capacity to create an EBP culture, as well as, the need to create an essential, competent mass of nurses (facilitators) who assess and apply research findings. This study also identified the importance of not only, cultural readiness and resources, but also a framework with processes for EBP adoption

Author, Title (Year)	Conceptual Framework	Design/ Method	Sample / Setting	Major Variables Studied and Their Definitions	Measure-ment	Data Analysis	Findings	Appraisal: Worth to Practice; Level (L); Quality (Q)
		readiness in an acute care hospital				survey going from (3.10 (0.96) vs. 3.70 (0.77); F (1, 896) = 128.1, P < .001).		L: II Q: High
Doherty, et al 2012 **Following a natural experiment of guideline adaptation and early implementation: a mixed methods study of facilitation**	Knowledge to Action And Stetler	AIM: Examine how facilitation occurs to help move research evidence into practice	The Canadian Partnership Against Cancer: Sampling of CPGs implemented at local, regional and Pan-Canadian	Facilitation, a multi-faceted process and team effort	Audit tool containing 46 discrete facilitation activities	Retrospectively processed mapped the implementation of 3 levels of CPGs to identify the presence of facilitation activities. Took from 11-17 months to analyze documents which chronicled the activities for diffusing the CPGs	Validated the 46 discrete activities and identified five other activities. Also categorized into 4 major phases for implementation-diffusion: 1) Planning 2) Leading Change 3) Monitoring progress & implementation 4) Evaluating Change	congruence with the emerging definition of facilitation. The study also revealed five additional activities performed by this type of facilitator. These, in part, included "thinking ahead in the process" and "ensuring group remains on task…" Given these findings, project management materialized as a key component of facilitation. L: III Q: Medium
Appraisal Tool Utilized: John Hopkins Nursing Evidence-Based Practice (JHNEBP) Research Evidence Appraisal Tool								

Appendix H
Synthesis Table: Levels of Evidence

	Gerrish, et al (2011)	Thorsteinsson & Sveinsdottir (2014)	Melnyk & Fineout-Overholt (2012)	Milner, et al (2006)	Hauck, Winsett & Kuric (2012)	Dogherty, et al (2012)
Level I: Systematic Review or Meta- Analysis						
Level II: Quasi Experimental (some degree of investigator control		X		X	x	
Level III: Non-Experimental or Qualitative	x		x			x

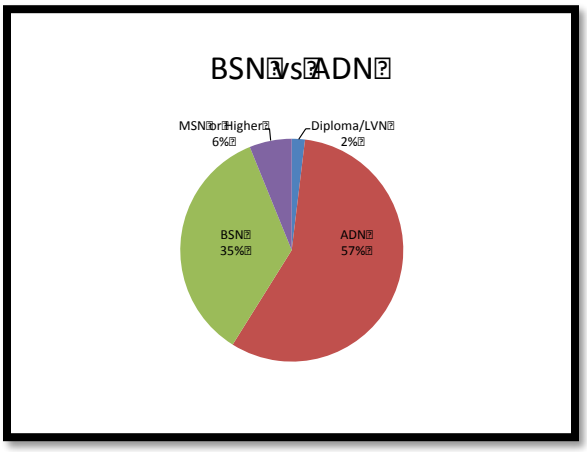
Table adapted from Fineout-Overholt, B., Melnyk, and John Hopkins Nursing Evidence-Based Practice, Research Evidence Appraisal Tool

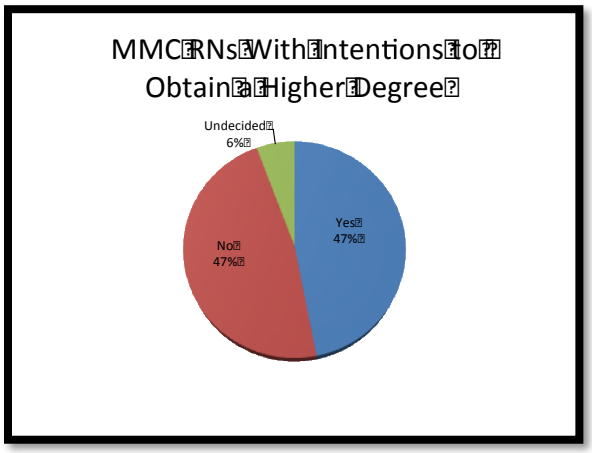
Appendix I
Organization's Baseline Culture of Safety Survey

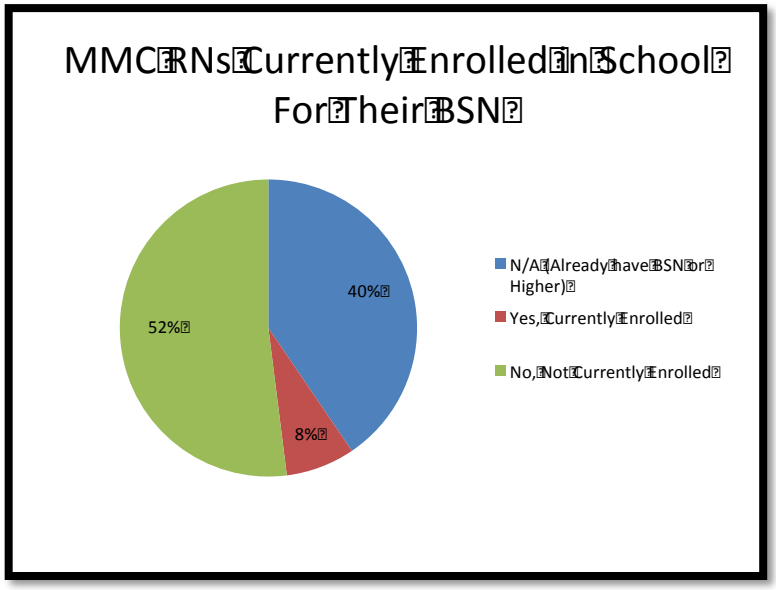
Composite Dimension	MMC 2014 Score Baseline w/o HPI	2015 AHRQ Benchmark
Overall perceptions of safety	60	62
Frequency of events reported	63	64
Supervisor/manager expectations & actions promoting safety	69	73
Organizational learning—continuous improvement	71	71
Teamwork within units	80	80
Communications openness	57	60
Feedback & Communication about errors	65	65
Non-punitive response to error	37	40
Staffing	48	52
Hospital management support for patient safety	66	68
Teamwork across hospital units	54	55
Hospital handoffs & transitions	36	42

Source: Agency for Healthcare Research and Quality. (2016, May). Hospital survey on patient safety culture. Retrieved October 8, 2016, from *Agency for Healthcare Research and Quality: Advancing Excellence in Healthcare:* http://www.ahrq.com

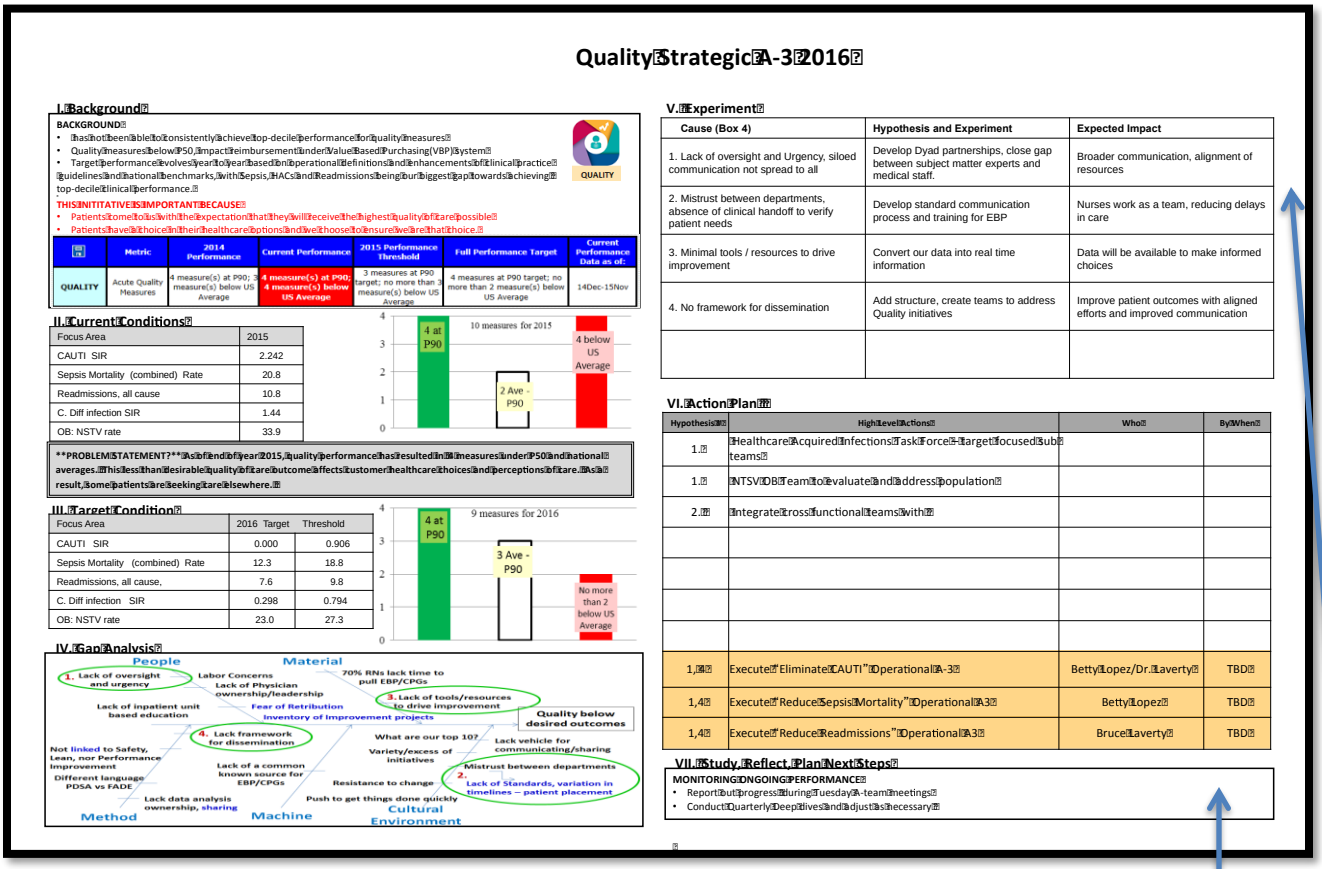
Appendix J
Organization's RN Educational Background, 2015







Appendix K
Lean A3 and HRO Principles, Finding the Relationships



Quality Strategic A-3 2016

I. Background

BACKGROUND
- has not been able to consistently achieve top-decile performance for quality measures
- Quality measures below P50, Impact Reimbursement under Value Based Purchasing (VBP) System
- Target performance evolves year to year based on operational definitions and enhancements of clinical practice guidelines and national benchmarks, with Sepsis, HACs and Readmissions being our biggest gap towards achieving top-decile clinical performance.

THIS INITITATIVE IS IMPORTANT BECAUSE
- Patients come to us with the expectation that they will receive the highest quality of care possible
- Patients have a choice in their healthcare options and we choose to ensure we are that choice.

QUALITY

	Metric	2014 Performance	Current Performance	2015 Performance Threshold	Full Performance Target	Current Performance Data as of:
QUALITY	Acute Quality Measures	4 measure(s) at P90; 5 measure(s) below US Average	4 measure(s) at P90; 4 measure(s) below US Average	3 measures at P90 target; no more than 3 measure(s) below US Average	4 measures at P90 target; no more than 2 measure(s) below US Average	14Dec-15Nov

II. Current Conditions

Focus Area	2015
CAUTI SIR	2.242
Sepsis Mortality (combined) Rate	20.8
Readmissions, all cause	10.8
C. Diff infection SIR	1.44
OB: NSTV rate	33.9

PROBLEM STATEMENT* As of end of year 2015, quality performance has resulted in 4 measures under P50 and national averages. This less than desirable quality of care outcome affects customer healthcare choices and perceptions of care. As a result, some patients are seeking care elsewhere.

III. Target Condition

Focus Area	2016 Target	Threshold
CAUTI SIR	0.000	0.906
Sepsis Mortality (combined) Rate	12.3	18.8
Readmissions, all cause,	7.6	9.8
C. Diff infection SIR	0.298	0.794
OB: NSTV rate	23.0	27.3

IV. Gap Analysis

V. Experiment

Cause (Box 4)	Hypothesis and Experiment	Expected Impact
1. Lack of oversight and Urgency, siloed communication not spread to all	Develop Dyad partnerships, close gap between subject matter experts and medical staff.	Broader communication, alignment of resources
2. Mistrust between departments, absence of clinical handoff to verify patient needs	Develop standard communication process and training for EBP	Nurses work as a team, reducing delays in care
3. Minimal tools / resources to drive improvement	Convert our data into real time information	Data will be available to make informed choices
4. No framework for dissemination	Add structure, create teams to address Quality initiatives	Improve patient outcomes with aligned efforts and improved communication

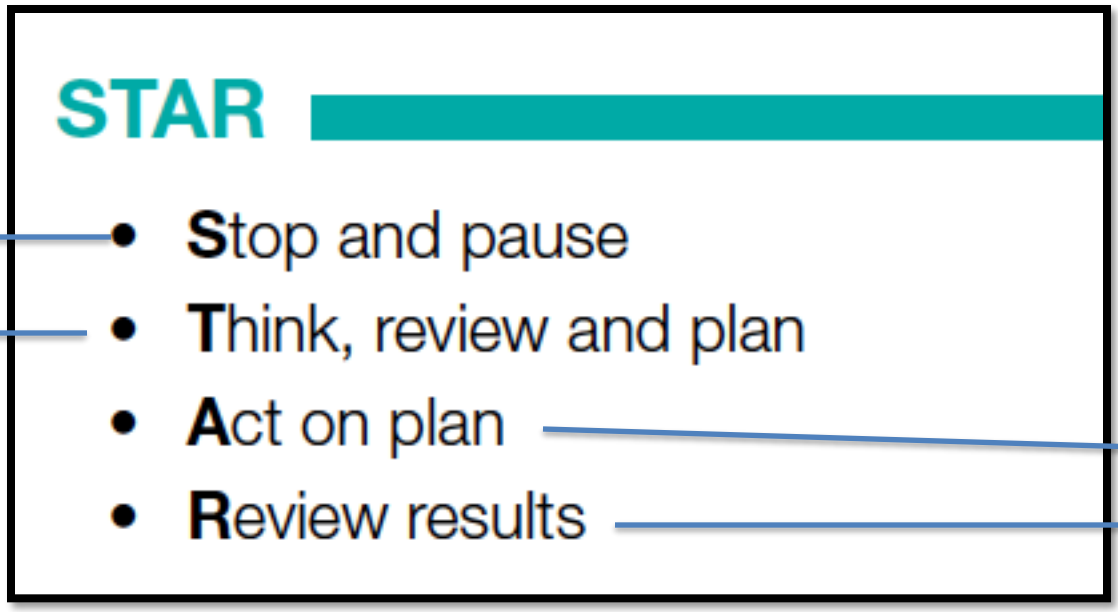
VI. Action Plan

Hypothesis	High Level Actions	Who	By When
1.	Healthcare Acquired Infections Task Force + Target focused Sub teams		
1.	NTSV OB Team to evaluate and address population		
2.	Integrate cross functional teams with		
1,4	Execute "Eliminate CAUTI" Operational A-3	Betty Lopez/Dr. Laverty	TBD
1,4	Execute "Reduce Sepsis Mortality" Operational A3	Betty Lopez	TBD
1,4	Execute "Reduce Readmissions" Operational A3	Bruce Laverty	TBD

VII. Study, Reflect, Plan Next Steps

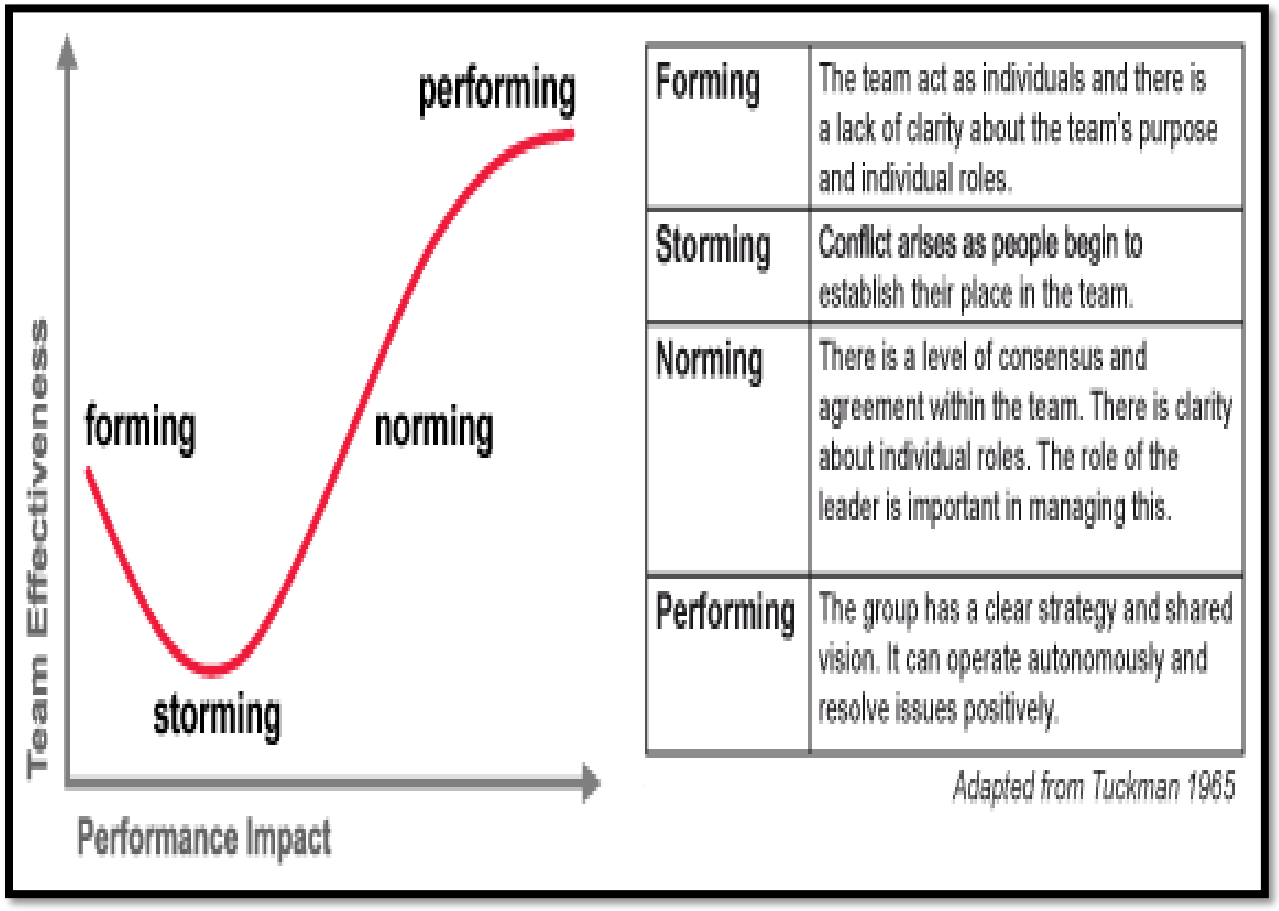
MONITORING ONGOING PERFORMANCE
- Report out progress during Tuesday A-team meetings
- Conduct Quarterly Deep Dives and adjust as necessary

Lean A3 for Quality



Source: High Reliability Organization: STAR tactic (Healthcare Performance Improvement, 2014)

Appendix L
Tuckman's Forming, Storming, Norming, Performing Model



Forming	The team act as individuals and there is a lack of clarity about the team's purpose and individual roles.
Storming	Conflict arises as people begin to establish their place in the team.
Norming	There is a level of consensus and agreement within the team. There is clarity about individual roles. The role of the leader is important in managing this.
Performing	The group has a clear strategy and shared vision. It can operate autonomously and resolve issues positively.

Adapted from Tuckman 1965

Source: (Bonebright, 2009)

Appendix M
Project GANNT Chart

ID	Task Name	Start	Finish
1	CEO APPROVAL OF Proposed DNP Project	1/29/2015	1/29/2015
2	Regional Director of Human Resources/ Concept Approval	2/2/2015	2/6/2015
3	Charge RN Forum Planning—Introduce EBP	1/29/2015	4/20/2015
4	Sepsis Dyad Partners Selected	2/9/2015	2/13/2015
5	Core Team Meetings Using ARCC	1/29/2015	10/28/2016
6	Other EBP Champions/ Partners Identified and Introduced to ARCC model and EBP Diffusion Framework	1/29/2015	4/29/2016
7	Stroke Dyad Partnership & intro to ARCC, EBP Architectural Framework	1/29/2015	10/28/2016
8	Stroke Certification Survey	4/15/2015	4/15/2015
9	Intro &Update Sepsis into Medical Staff mtgs	4/20/2015	10/28/2016
10	CME/Chair of Quality/Safety intro to EBP model/concept & alignment	4/28/2015	10/28/2016
11	Charge RN Forum Intro to EBP	4/20/2015	4/27/2015
12	1ST Dyad Report Out in Quality/Safety: Sepsis	5/6/2015	5/6/2015
13	1st Dyad Report Out into MedExec, Sepsis	5/12/2015	5/12/2015
14	EBP Facilitators to Lean Training & Coaching	6/29/2015	9/29/2015
15	Evaluate Charter of Shared Governance Council—Intro to EBP	9/29/2015	9/30/2016
16	Intro Lean to Central Partnership	1/12/2016	1/12/2016
17	Align Central Partnership/Shared Governance Goals to MMC Strategy	1/12/2016	2/8/2016
18	PDSA Cycles within Shared Governance	2/9/2016	3/31/2016
19	Reassessment of ARCC use with educators & facilitators	5/2/2016	5/30/2016
20	Update Framework based on feedback	6/1/2016	6/14/2016
21	Charge RN Forum Planning/Update on EBP Diffusion—Summer Mini-Series	6/1/2016	9/23/2016
22	Data collection on outcomes: Sepsis, Stroke, CAUTI, C Diff, HAPUs, Falls,	1/29/2015	10/28/2016
23	Framework Finalize/Project Complete	8/29/2016	11/1/2016

Appendix N
ARCC Assessment Tool

ARCC llc
Advancing Research and Clinical practice through close Collaboration
Transforming Healthcare through Evidence-based Practice

Fineout-Overholt & Melnyk

Organizational Culture & Readiness for System Wide Integration of Evidence- based Practice Survey

Below are 19 questions about evidence-based practice (EBP). Please consider the culture of your organization and its readiness for system wide implementation of EBP and indicate which answer best describes your response to each question. **There are no right or wrong answers.**

Item	None at All	A Little	Somewhat	Moderately	Very Much
1. To what extent is EBP clearly described as central to the mission and philosophy of your institution?	1	2	3	4	5
2. To what extent do you believe that EBP is practiced in your organization?	1	2	3	4	5
3. To what extent is the nursing staff with whom you work committed to EBP?	1	2	3	4	5
4. To what extent is the physician team with whom you work committed to EBP?	1	2	3	4	5
5. To what extent are there administrators within your organization committed to EBP (i.e., have planned for resources and support [e.g., time] to initiate EBP)?	1	2	3	4	5
6. In your organization, to what extent is there a critical mass of nurses who have strong EBP knowledge and skills?	1	2	3	4	5
7. To what extent are there nurse scientists (doctorally prepared researchers) in your organization to assist in generation of evidence when it does not exist?	1	2	3	4	5
8. In your organization, to what extent are there Advanced Practiced Nurses who are EBP mentors for staff nurses as well as other APNs?	1	2	3	4	5
9. To what extent do practitioners model EBP in their clinical settings?	1	2	3	4	5
10. To what extent do staff nurses have access to quality computers and access to electronic databases for searching for best evidence?	1	2	3	4	5
11. To what extent do staff nurses have proficient computer skills?	1	2	3	4	5
12. To what extent do librarians within your organization have EBP knowledge and skills?	1	2	3	4	5
13. To what extent are librarians used to search for evidence?	1	2	3	4	5
14. To what extent are fiscal resources used to support EBP (e.g. education-attending EBP conferences/workshops, computers, paid time for the EBP process, mentors)	1	2	3	4	5
15. To what extent are there EBP champions (i.e., those who will go the extra mile to advance EBP) in the environment among:					
a. Administrators?	1	2	3	4	5
b. Physicians?	1	2	3	4	5
c. Nurse Educators?	1	2	3	4	5
d. Advance Nurse Practitioners?	1	2	3	4	5
e. Staff Nurses?	1	2	3	4	5
16. To what extent is the measurement and sharing of outcomes part of the culture of the organization in which you work?	1	2	3	4	5
Item	None	25%	50%	75%	100%
17. To what extent are decisions generated from:					
a. direct care providers?	1	2	3	4	5
b. upper administration?	1	2	3	4	5
c. physician or other healthcare provider groups?	1	2	3	4	5
Item	Not ready	Getting Ready	Been Ready but Not Acting	Ready to Go	Past Ready & onto Action
18. Overall, how would you rate your institution in readiness for EBP	1	2	3	4	5
Item	None at All	A Little	Somewhat	Moderately	Very Much
19. Compared to 6 months ago, how much movement in your organization has there been toward an EBP culture.	1	2	3	4	5

Used with Permission obtained from Ms. Fineout-Overholt. Source: (Melnyk & Fineout-Overholt, Evidence-based practice in nursing & healthcare, 2015)

Appendix O
Charge Nurse Forum Agenda, April 20th and 27th, 2015

Sutter Health
Memorial Medical Center
We Plus You

memorialmedicalcenter.org

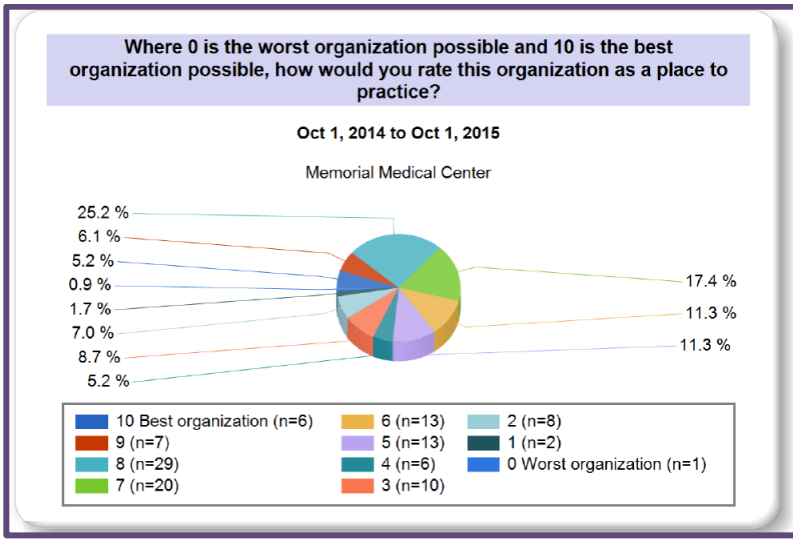
Charge Nurse Symposium Agenda

Unleashing the Power of Nursing

Welcome	**Betty, Lorry, Sergio**
Intro Tina Pollock	**Tina Pollock**
Nursing Now & Into the Future - Patient Experience—What Does It Mean? - Institute of Medicine, The Future of Nursing - Magnet and Baldrige, Is it In our Future	**Betty, Lorry, Sergio**
Triple "E" - Education, Evidence-Based Practice and Empowerment	**Terry Lynch**
Tracing our Patients in Current State • ED Throughput • RATT Call • Code Blue • Sepsis	**Scott, Kendall, Carlo, Craig, & Robin**
Break	
As a Charge Nurse…How Do You Influence Improvement Through Empowerment?	**Terry Lynch**
Taking Us Into The Future • Table Top Activity • Report Out	**All**
Closing (recognition & video)	**Betty, Lorry, Sergio**

"I am a NURSE, what's your superpower?"

Appendix P
Physician Engagement Baseline Scores



Response Label	n-Size (n=115)	Percentage Response
10 Best organization	6	5.2%
9	7	6.1%
8	29	25.2%
7	20	17.4%
6	13	11.3%
5	13	11.3%
4	6	5.2%
3	10	8.7%
2	8	7.0%
1	2	1.7%
0 Worst organization	1	0.9%

Appendix Q
Central Partnership Council, Empowered Individuals Who Can Act on the Vision

Central Partnership Council 2015 Feedback

Q2 What type of work do you think we should accomplish given the scope of our Central Partnership Council?

Answered: 23 Skipped: 0

#	Responses	Date
1	The most important thing is intradepartmental issues- how to smooth the workflow to give our patients the best, safest care.	10/28/2015 7:40 AM
2	Processes that involve the departments working together and communicating successfully to provide the best patient/family centered care	10/22/2015 4:00 PM
3	Continue to work on things around service excellence.	10/22/2015 12:15 PM
4	Find out what other hospitals are doing and develop a uniform best practice that can be rolled out system wide (kinda like Kaiser).	10/22/2015 8:35 AM
5	Improvements which make the work environment run smoother, remove barriers, help resolve system issues, Make staff feel PC make a difference for the unit.	10/22/2015 7:13 AM
6	Increasing safety and spreading best practices across departments Improving the patients/families perception of care and spreading best practices across department	10/21/2015 4:17 PM
7	Presenting concerns regarding hospital procedures, care provided, improvements that may need to happen to all work together for the same goal, safe patient care.	10/15/2015 1:45 AM
8	Interdisciplinary focus	10/13/2015 4:27 PM
9	What is currently being done is great	10/13/2015 3:31 PM
10	.	10/13/2015 7:48 AM
11	the productive type	10/10/2015 9:57 AM
12	Patient centered care, with all around positive patient experience.	10/9/2015 2:07 PM
13	Patient Experience, initiatives to help with LOS	10/9/2015 11:20 AM
14	communication, problem solving, networking	10/8/2015 2:34 PM
15	patient safety	10/8/2015 12:29 PM
16	We should identify a global issue that we can all work on together.	10/8/2015 7:48 AM
17	Same as in charter	10/7/2015 12:26 PM
18	Problem solving and feedback to patient and staff issues, education and training opportunities n't above	10/7/2015 11:55 AM
19	Unity in the organization, active participation of all team players to encourage retention of staff.	10/7/2015 11:42 AM
20	Clinical decision making and communication with patients/family and co-workers	10/7/2015 11:09 AM
21	utilize the department IPC to work with other department IPCs for more of a collaborative approach to work better together for patient care.	10/7/2015 10:02 AM
22	Test	10/7/2015 8:54 AM
23	best practice guidelines for the future.	10/7/2015 8:10 AM

Appendix R
Responsibility Communication Matrix Plan

Date	Activity	Responsibility	Communication Plan
Feb/Mar 2015	Baseline EBP Readiness	Lead educator	Use results to plan RN Forum Agenda & communicate results at that time
Mar 2015	Plan RN Forum	Betty Lopez & Nursing Directors	Plan agenda with stakeholders, using introduction of EBP as a Triple E—empowerment, education, EBP
Mar 2015	Review EBP DDI Framework & Interventions with Sepsis Coordinator	Betty Lopez	Utilize forum to introduce Sepsis with the framework of EBP
April 2015	Assess future dyad partners for potential clinical improvements	Betty Lopez & CME	Meet with each dyad team to review EBP DDI framework & resources needed
April 2015 & ongoing	Evaluate Daily Engagement Processes & Systems	Betty Lopez & Nursing Directors	Daily presence at charge nurse and manager huddles
April 2015 & ongoing	Central Partnership Council, enhance knowledge of EBP, CQI, Lean, HRO principles	Betty Lopez & Lean project manager	Plan agenda to introduce EBP and Lean every month, relate to Council's current CQI projects
Dec 2015 & ongoing	Evaluate effectiveness of RN professional portfolio	Betty Lopez & nursing leadership team	Announce changes for plan end of 2016

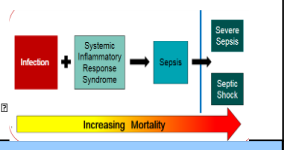
Appendix S
Sepsis: Lean A3

Reduction in Sepsis Mortality

Exec Sponsor: Betty Lopez | **Project Owner Dyad:** Robin MacPherson-Dias/Dr. Elias | **Coach:** Julie Baker | **Updated: 9/26/16**
Core Team: MMC Sepsis Committee

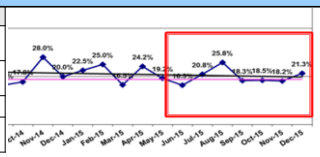
I. Background

- At MMC, severe sepsis & septic shock are the leading cause of hospital mortality.
- Septic shock mortality continues to be sub par and the 6 hr bundle not consistently utilized.
- We have been working to improve early identification of sepsis and implementation of sepsis treatment bundles to decrease morbidity & mortality through adoption of standard work from Sutter Health Sepsis initiatives.



II. Current Condition (As of December, 2015)

Pillar	Metric	Current
Quality	Combined Severe Sepsis and Septic Shock Mortality	21.1% Dec-23/109
Quality	Patients meeting Code Sepsis criteria will be activated as Code Sepsis	45% (Dec)
Quality	Code Sepsis to Admit Order < 30 min	102 min (Jan)
Quality	Early Management Bundle compliance > 89%	48% (Jan)



Problem Statement: Although trending down, we have not reached the new target level performance for combined severe sepsis/ septic shock mortality of 12.2%. Our Septic shock patients are remaining in the ED approximately 360 minutes or more before transferring to an ICU bed. Completion of the 6 hr bundle is not consistent.

III. Target Condition

Pillar	Metric	Baseline	Target
Quality	Combined Severe Sepsis and Septic Shock Mortality 12 month rolling 2015	20.4% (210/1027)	12.2%

Early recognition + Early Intervention + Care Coordination = Reduced Mortality

IV. Gap Analysis

Top Contributors	Root Cause
1. **Identification:** Early identification of sepsis patients through sepsis screening and use of standard work/process for positive screens not consistently utilized.	- Pre-hospital identification delays - Knowledge gap - Bypassing sepsis screening or alerts
2. **Initiation of Treatment:** 3 & 6 hour bundle compliance not consistently at goal.	- Lack of knowledge for providers & RNs - Inconsistent use of order sets - Lack of feedback to clinicians + DFI's and recognition - Variation in practice
3. **Process Implementation:** Code Sepsis patients in ED have prolonged ED LOS, inconsistent involvement with Intensivist, and delays in admitting to ICU.	- Code Sepsis process not consistently followed - Complex ICU admit process

V. Experiments

If we.....	Then we....
1. **Identify** sepsis patients early and utilize standard work for positive screens by educating clinicians (including community)	Will have decreased mortality to a goal of 12.2% from a baseline of 20.4%.
2. **Initiate** the 3 & 6 hour bundle by reducing provider variation	Will have **increased bundle compliance** and coordination of care by attaining goal of 90% compliance or >.
3. **Implement** and adhere to the Code Sepsis process by educating and providing feedback.to clinicians and utilizing parallel processing,	Will have code sepsis patients obtain **admit order <30** min from a baseline of 105 min and ED LOS will be decreased

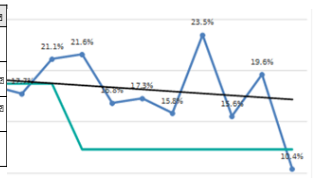
VI. Action Plan

#	Action	Owner	Due	Status
1.0	Develop education plan for ED, ICU, Hospitalists & ED physicians (2/17) for 6 hr bundle.	Robin M.	4/30/16	Complete
2.1	Review Code Sepsis patients for compliance with process and bundle criteria	Robin M.	Ongoing	Current & up to date
2.2	Develop curriculum and plan for SNF education regarding Sepsis	Robin M	6/30/16	Complete
2.3	Implement Sepsis education for top 5, SNFs with > ED admits	Robin M	9/30/16	In progress
3.1	Provide case feedback to RN's and providers for ED Code Sepsis patients and develop recognition plan.	Robin M	2/18/16	Complete
3.2	Develop DFI letter for physicians for CMS DFIs for sepsis & implement process	Robin M	5/1/16	Complete
3.3	Develop Variation reduction plan for physicians utilizing Sutter Health Variation Reduction Team	Robin M/ Sarbi R.	Start 6/21/16	In progress
3.4	CDI nurses to address sepsis documentation issues to improve coding issues	Robin M/ Janet B.		Ongoing

VII. Study, Reflect, Plan Next Steps (PDSA)

8/3/16 Code Sepsis subgroup met to address issues with bed assigned to ICU arrival. New process developed. To deploy new process 8/22.
8/17/16 Variation reduction team met with ED physician group to present sepsis data and variation.

	Metric	Current/Target
Outcome	Combined Severe Sepsis and Septic Shock Mortality	10.4%/12.2% Aug 10/96
1.0 In Process	Patients meeting Code Sepsis criteria will be activated as Code Sepsis	47%/100% (Jun)
2.0 In Process	Code Sepsis to Admit Order < 30 min	150 min/30 min (Aug)
3.0 In Process	Early Management Bundle compliance > 89%	85%/90% (Jul)



Appendix T
Organization's RNs' EBP Cultural Assessment, One-Year Post Project Intervention

In enhancing/building your knowledge of Sepsis and Stroke:

1. What modality of teaching provided you the best learning environment for Sepsis and Stroke:
2. Did staff meetings/stand ups contribute to your knowledge of stroke and sepsis alert processes?
3. Do you find mock drills helpful to enhance your knowledge and to understand roles and responsibilities during stroke/sepsis alerts?

In applying your or your colleagues' knowledge "in the moment of need":

4. Do the stroke facilitators/rapid response RNs provide a needed resource for these alerts?
5. Which other resources have been useful when managing either sepsis or stroke patients (mark all that apply):
    a. On line (ie AHA guideline online)
    b. PolicyStat (example, NIHSS in fast forms)
    c. HealthStream Library
    d. Ongoing classroom education
    e. Binders (example, AHA guidelines in a binder, STEMI)
    f. Flowcharts
    g. Packets
    h. Booklets (ACS, Stroke, Sepsis, NIHSS)

    Other (please specify)

6. Do you have access to current Evidenced Based Practice (EBP) or Clinical Practice Guidelines?

In supporting use of Evidence Based Practice (EBP), with all of clinical care, such as Sepsis, Stroke, CAUTI, please answer the following:

7. To what extent is EBP clearly described as central to the mission and philosophy of your institution?
    1.None at All 2.A Little 3. Somewhat 4.Moderately 5.Very Much
8. To what extent do you believe that EBP is practiced in your organization?
    1.None at All 2.A Little 3. Somewhat 4.Moderately 5.Very Much
9. To what extent is the nursing staff with whom you work committed to EBP?
    1.None at All 2.A Little 3. Somewhat 4.Moderately 5.Very Much
10. To what extent is the physician team with whom you work committed to EBP?
    1.None at All 2.A Little 3. Somewhat 4.Moderately 5.Very Much
11. How else can we continue to support you with keeping up to date with clinical practice and integrating best clinical evidence into your everyday practice?

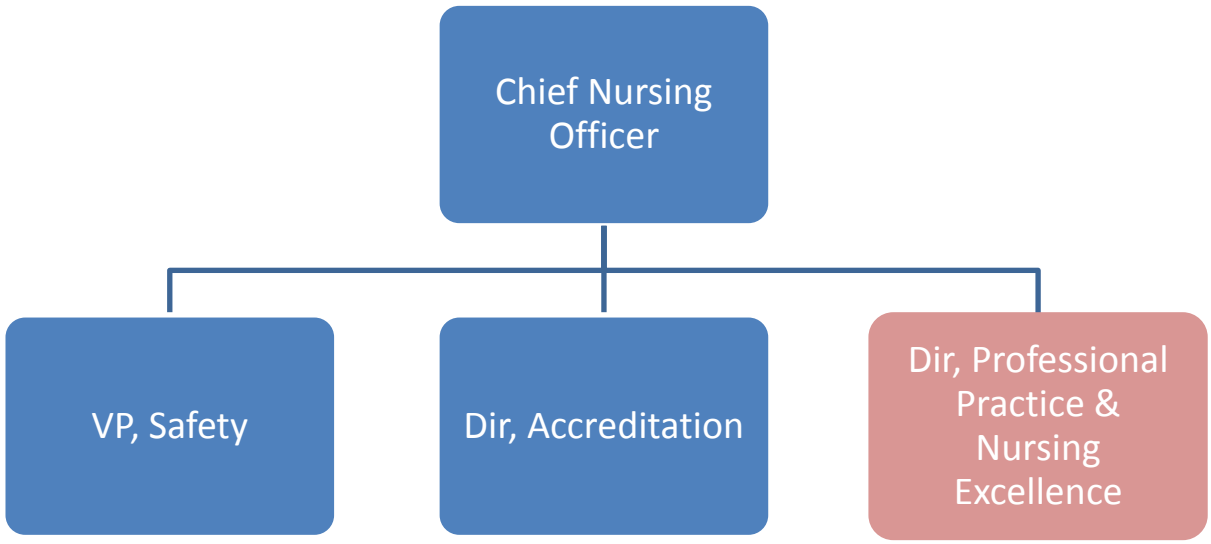
Appendix U
System Level EBP Clinician, Job Description

Job Title: Director, Professional Practice & Nursing Excellence	Date created: 6/2016	Date(s) revised:
Department: Office of Patient Experience	Written by:	
Lawson Job Code:	PSDP Job Code (if applicable):	

Job Summary

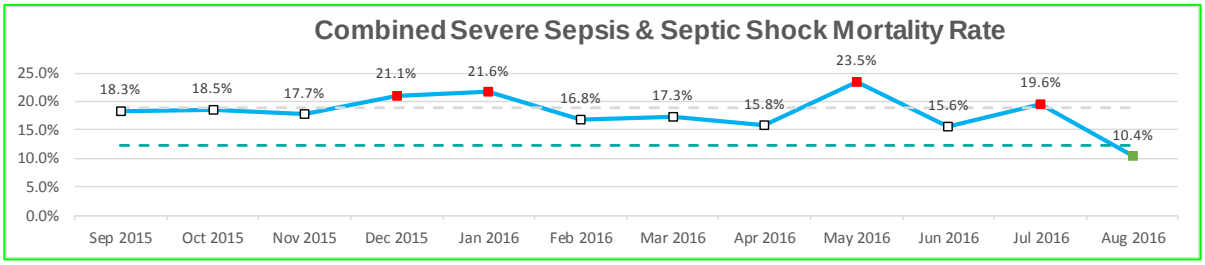
The Director of Professional Practice & Nursing Excellence ("Director") supports the Chief Nursing Officer and is accountable for areas of responsibility that encompass inter-professional practice and health system transformation; professional development, clinical education, and training; leadership; research, innovation and novel models; **and evidence-based practice**, and quality improvement with a focus on improving quality outcomes. The Director will be responsible for providing leadership and for being a change agent to advance professional practice at the affiliate level that is in alignment with the Sutter system. This includes establishing partnerships, linkages, and collaboration among inter-professional clinical staff and leaders, as well as affiliated academic institutions and professional organizations. The Director will advance a culture of professional & inter-professional practice, foster evidence-based practices and continuous improvement, cultivate lifelong learning, partner in the implementation and enhance technology to support clinical practice, and service excellence within the system.

Organization Chart

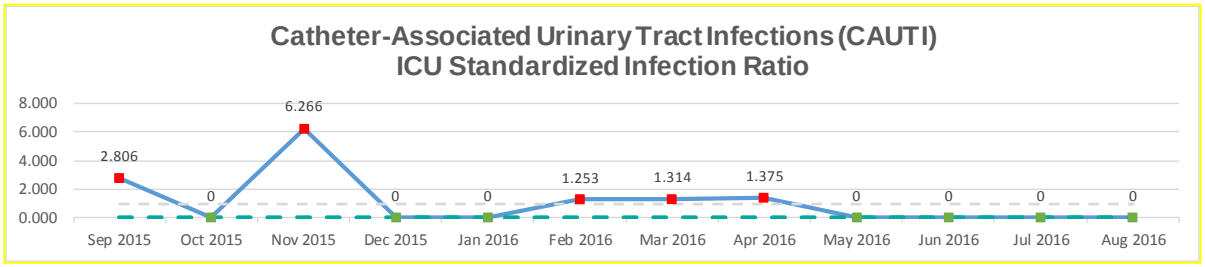


Appendix V
Outcomes of Focused Improvement Initiatives

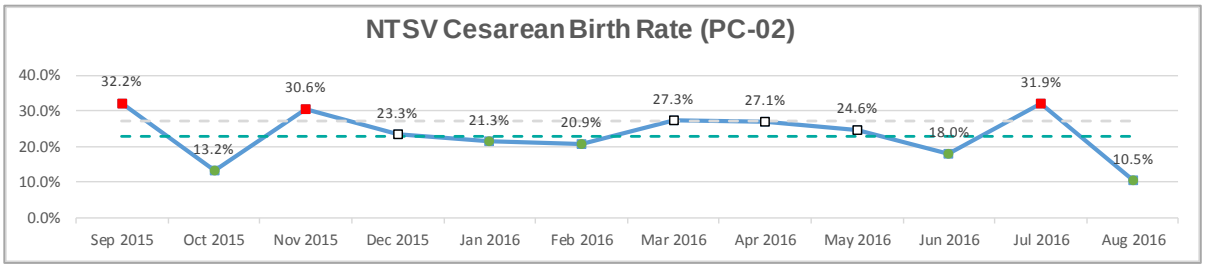
Sepsis: Mortality Rate at Start of Project: **21.9%** Current: **10.4%**



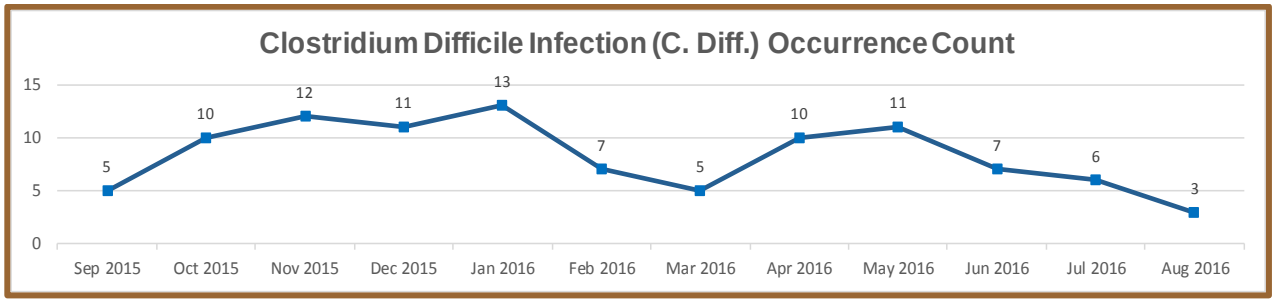
CAUTI: Rate at Start of Project: **1.101** Current: **0**



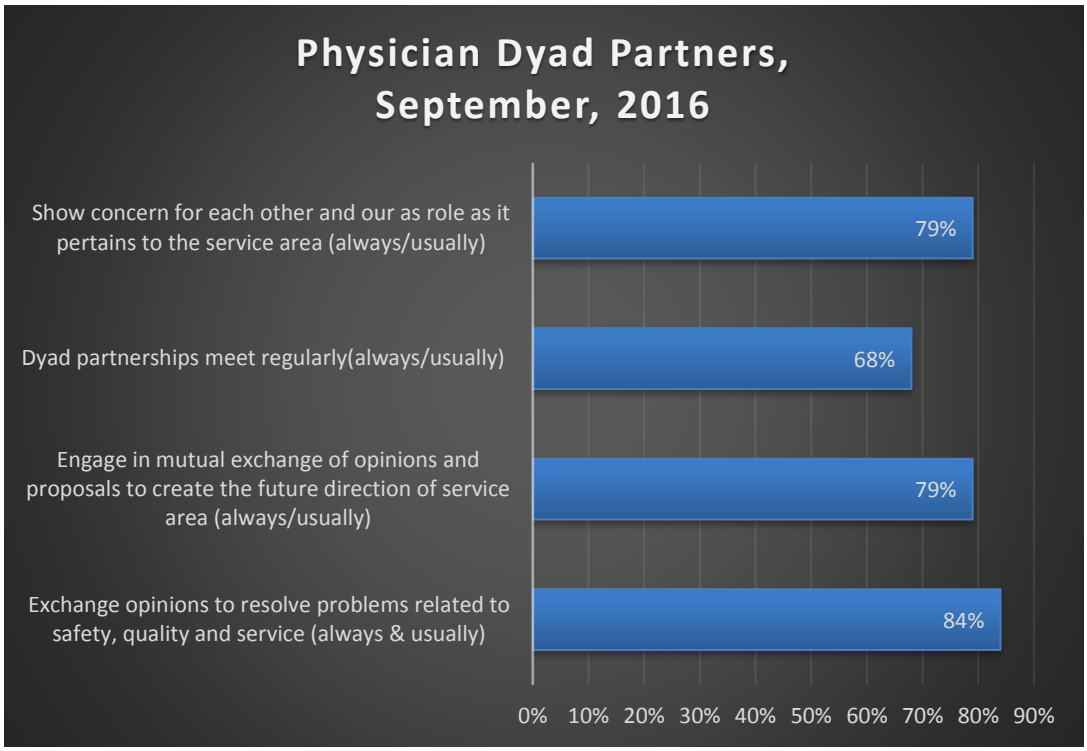
NTSV: Rate at Start of Project: **29.3%** Current: **10.4%**

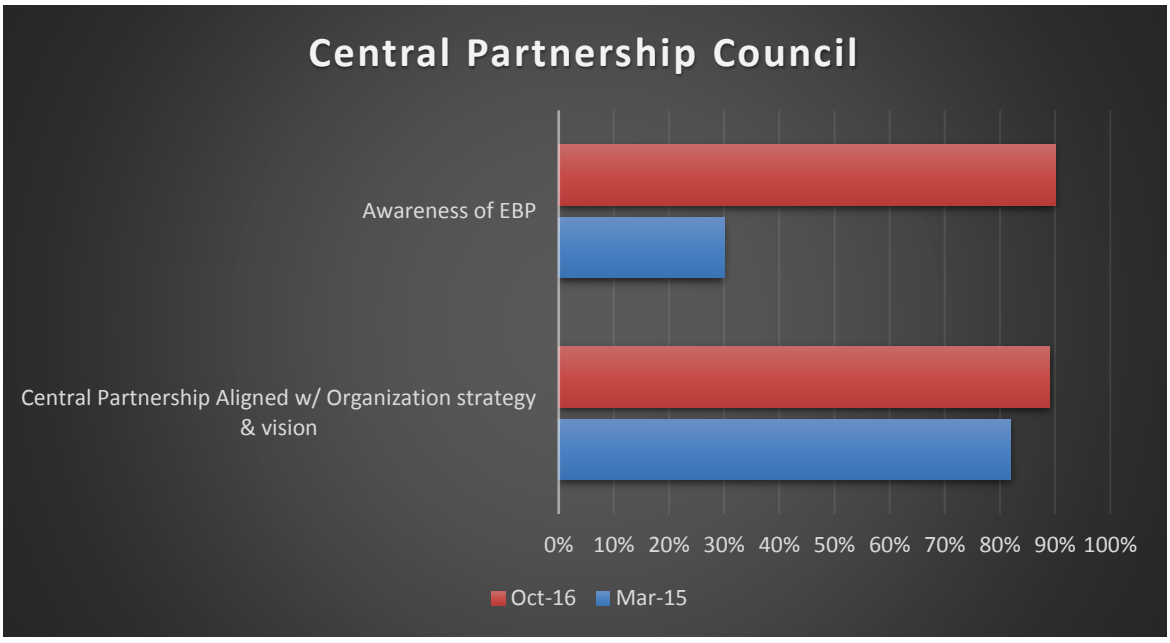


C. Diff.: Rate at Start of Project: **2.235** Current: **1.245**

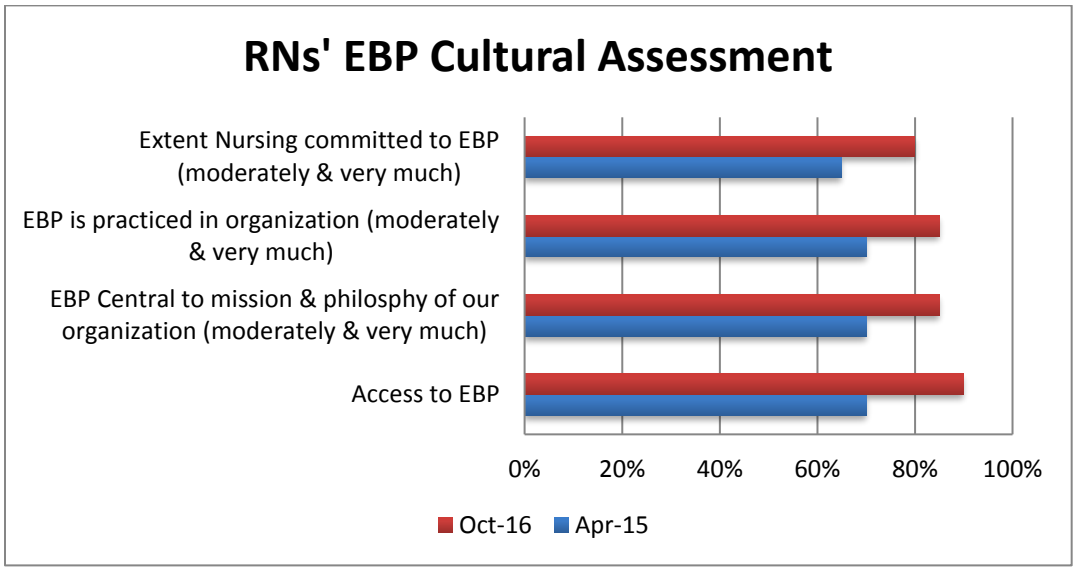


Appendix W
Cultural/Behavioral Changes: Physician Dyad and Central Partnership Council





Appendix X
RN EBP Cultural Assessment, Comparison to Baseline



Appendix Y
Cultural Assessment, Culture of Safety Changes 2014 Compared to 2015

Composite Dimension	Entity 2015 Score	Entity 2014 Score	2015 AHRQ Benchmark
Overall perceptions of safety	60	60	62
Frequency of events reported	65	63	64
Supervisor/manager expectations & actions promoting safety	72	69	73
Organizational learning—continuous improvement	74	71	71
Teamwork within units	82	80	80
Communications openness	62	57	60
Feedback & Communication about errors	70	65	65
Non-punitive response to error	41	37	40
Staffing	48	48	52
Hospital management support for patient safety	68	66	68
Teamwork across hospital units	55	54	55
Hospital handoffs & transitions	36	36	42

Adapted from MMC's 2015 and 2014 AHRQ Hospital Survey on Patient Safety Culture

Appendix Z
Modified Summer Nursing Forum, A Mini-Series of Evidence-Based Practices

Subject: Modified Summer Nursing Forum: A Mini-Series of Evidence-Based Practices

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Approximately a year ago, during one of the forums, we introduced the "Triple E" of Evidence, Educators, and Empowerment. These combined factors provide an approach for us to share clinical expertise, experiences, and best practices. Since then we have been making strides with delivery of care and aligning with the Institute of Medicine's recommendation, "that nurses lead collaborative quality improvement efforts and assume a major role in redesigning health care in the United States".

Today we are sitting at 72 days without a CAUTI; this outcome is possible because of your attention during insertion, maintenance and removal of our patients' Foley catheters. Our Sepsis mortality is trending downward, meaning you are identifying sepsis, taking necessary interventions and promoting the best outcomes for our patients.

Evidence-based best practices are constantly evolving. To that end, our nursing leaders, educators and physicians involved in specific improvement projects want to keep you informed. In keeping with our affordability plan, our speakers have prepared succinct, updated information in the topics below, making the collection of presentations our modified *Summer Nursing Forum: A Mini-Series of Evidence-Based Practices*. All of these series are drop-in sessions. Please watch for more information and details in the upcoming weeks.

C DIFF	**7/21 & 7/22**	**MAIN HALLWAY** **7/21: 7 – 9 a.m.** **7/21: 11 a.m. – 2 p.m.** **7/21: 11 p.m. – 7/22: 2 a.m.** **7/22: 11 a.m. – 2 p.m.**
PATIENT EXPERIENCE	**7/26 & 7/28**	**MAIN HALLWAY;** **Time TBD**
SEPSIS	**8/1 & 8/3**	**ORCHARD CONFERNECE ROOM** **8/1: 10 a.m. – 2 p.m.** **8/3: 6 – 10 p.m.**
CAUTI	**August TBD**	
HAPU	**August TBD**	

Appendix AA
Internal Environment, NLRB Orders New Election

Appendix BB
Strengths, Weaknesses, Opportunities and Threats

STRENGTHS

-Broad Services Offered
- Modesto Jr College, CSUS, Delta and Merced Nsg Schools
-Competitive Benefits
-Tuition Assistance/Reimbursement
-Nurse Residency Program
-Pay Per Performance (Non-Union)
-Shared Governance - Front Line Staff Engagement
-Successful Joint Commission Accredidation
-Successful Labor Campaign/Union Free

WEAKNESSES

- Non Competitive Wages
- No Retention Bonuses
-No Clinical Ladder/Growth Tracks
-Loss of Transfers (due to No Staff
-High LWBS Rates
-High ED Holds & Wait Times
-High LOA Rate (6%)
-Difficulty Recruiting for Specialty Areas

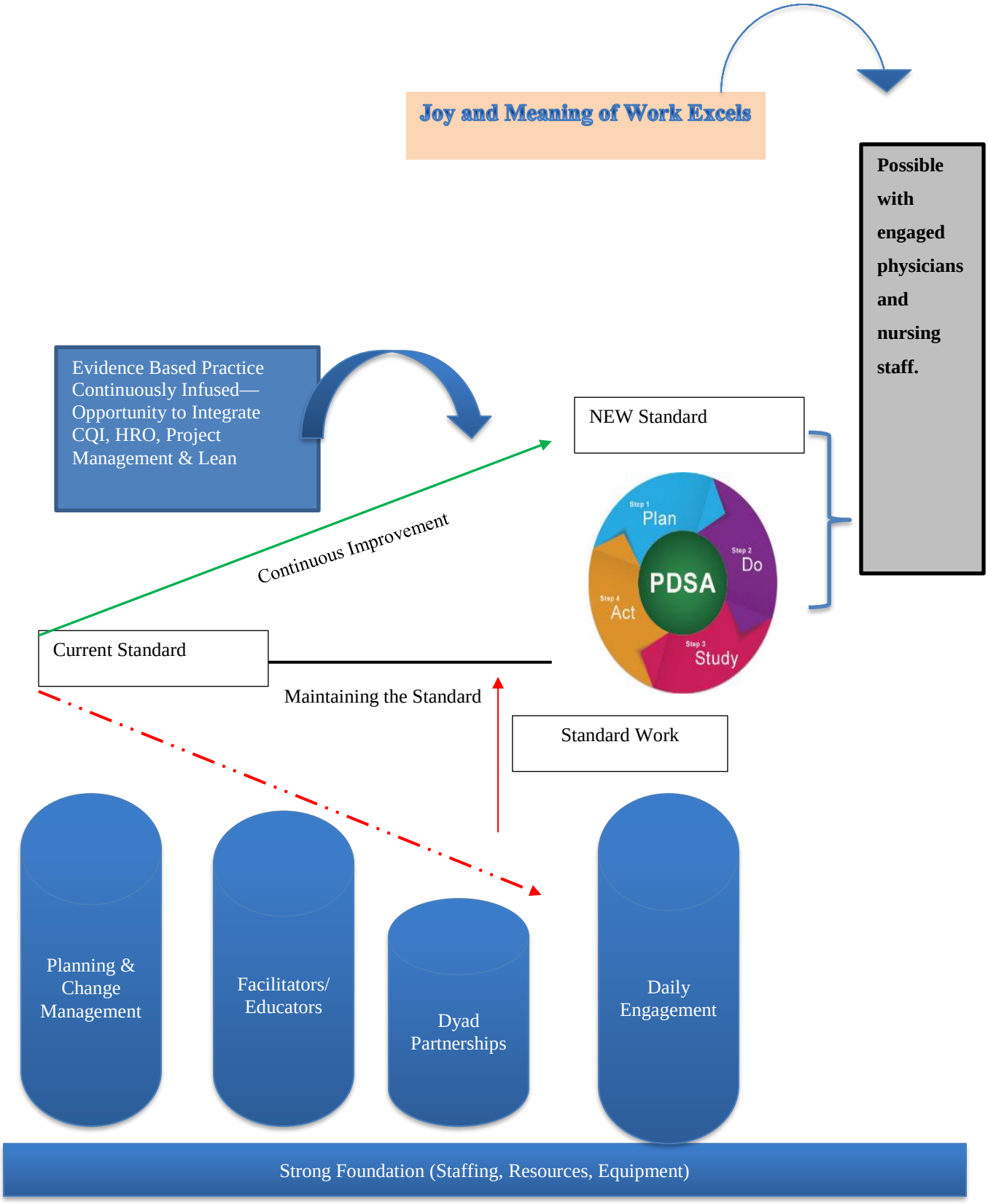
OPPORTUNITIES

-Narrow RN Vacancy Rate
-Decrease RN Turn Over
-Decrease OT/DT (30 FTE OT Impact)
-Decrease Traveler Usage
-Increase Quality Outcomes
-Increase Employee Engagement & Employee Enablement
-Increase the Patient Experience (HCAHPS Scores)
-Increase Physician Satisfaction
- ED LWBS volume @ $6,800/potential admit

THREATS

-Loss of Staff to Local Competitors (DMC, Kaiser, Other Sutter, etc.)
-Future Forecast of Staff Retirement (16% Baby Boomers)
-Decrease Quality
-Increase of Adverse Safety Events
-Rise in the Cost of Care
-More Knowledgeable Customer Base Researching Cost & Quality and Choosing Our Competitor for Services

Appendix CC: What's Possible with a Strong Architectural Framework



Appendix DD

Return on Investment Calculations: Cost Avoidance Compared to Project Budget

ICU Cost Avoidance With Targeted Improvement Projects and Impact on LOS

Metric	Baseline	2015 Projected Performance	2015 Actuals	2015 Actual Days Saved	2016 Actuals	2016 Actual Days Saved (annualized)	Total Savings based on 2,015 annualized discharges
ICU LOS	3.83	3.58	3.42	0.41	3.39	0.44	$2,442,381.50
Hospital LOS	5.83	5.33	4.6	1.23	4.46	1.37	$4,191,200.00
Ventilator LOS	4	3.5	3.5	0.5	3.16	0.84	$1,055,739.10
Total							$7,689,320.60

*Cost savings for ICU LOS Based on $1426/ICU patient day direct cost-savings

**Cost savings for Hospital LOS based on $800/Hospital patient-day direct cost savings

***Cost savings for Vent LOS based on $391/vent patient-day direct cost savings

Architectural Framework's Budget During Project

Intervention	Calculated Costs	Total
2015 RN Forum	800 RNs x $60/hr x 4 hrs	$ 192,200
Sepsis Training for New Hire RNs	120 RNs x $60/hr x 2 hrs	14,400
Lean Project Manager, Project Owner Time	4 meetings weekly x 8 hrs attendance & prep x 52 weeks x $98 hr avg	163,072
CAUTI, C Diff, Sepsis, NTSV Team Leader Time	1 meeting weekly x 16 hrs attendance & prep x 52 weeks x $80/hr avg	66,560
2016 RN Mini Series	(10 hrs topic x 4 team members/session x $60/hr) + ($600 Supply) x 10 sessions	30,000
Total Costs		$ 466,232