INTEGRATION OF PALLIATIVE CARE STANDARDS IN THE
ICU AT KAISER PERMANENTE MEDICAL CENTER
IN HAWAI‘I

A SCHOLARLY INQUIRY PROJECT SUBMITTED TO THE OFFICE OF GRADUATE
EDUCATION OF THE UNIVERSITY OF HAWAI‘I AT MĀNOA IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF NURSING PRACTICE

MAY 2015

By

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Dedication

This is dedicated to my parents.
Acknowledgment

I would like to take this opportunity to express my profound gratitude to my committee chair Dr. Ceria Ulep, along with Dr. Jessica Nishikawa from my committee, my external advisor Dr. Craig Nakatsuka from Kaiser Permanente, and Dr. Debra Mark, the DNP Program Director who graciously answered every question ever asked.

I would also like to thank the ICU physicians and ICU staff from Kaiser Permanente in Hawaii for indulging me in the initiation of this program, being open toward the education, for embracing the concepts, and finally for implementing and sustaining the practice change.
Abstract

Palliative care is medical care that enhances quality of life for patients living with serious advanced illness, by helping to align their treatment choices with their values. It has traditionally been used late in the care of patients, when all life-prolonging interventions have failed and death is imminent. Many chronically ill patients have not designated or discussed their care preferences with a surrogate decision maker. This omission can sometimes result in unwanted, aggressive treatments. There is evidence that demonstrates both the benefits of early identification of Goals-of-Care that are aligned with the patient’s wishes, and the importance of end-of-life care in the intensive care unit (ICU).

A structured, palliative care, quality-improvement program was implemented and evaluated in the ICU at Kaiser Permanente Hawaii. The goal was to incorporate basic palliative care principles into the routine ICU care, and to increase the numbers of palliative care consultations as necessary, thereby enhancing the utilization of existing palliative care services and improving end-of-life care in the ICU.

Pre- and post-interventional data showed an increase in the early identification of code status and Goals-of-Care, which, in turn, led to increased early ICU family meetings and also increased the numbers of palliative care consultations. Both the ICU length of stay and hospital length of stay decreased during the post-interventional period. The results from the family and nurse’s surveys were generally positive, and understanding of the process by the nursing staff showed improved trends throughout the interventional phase. It was concluded that integration of a structured palliative care program in the ICU was beneficial for patients, families and the ICU staff.
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List of Abbreviations

AACN-American Association of Colleges of Nursing
AD-Advance Directive
AGREE II-Appraisal of Guidelines for Research and Evaluation II
BSN-Bachelors of Science in Nursing
CAPC-Center to Advance Palliative Care
CCNE-Commission of Collegiate Nursing Education
CITI-Collaborative Institutional Training Initiative
CNO-Chief Nursing Officer
CPG-Clinical Practice Guideline
CPR-Cardiopulmonary Resuscitation
CMS-Centers for Medicare and Medicaid Services
DNR-Do-Not-Resuscitate
EBP-Evidence-Based Practice
EMR-Electronic Medical Record
FS-ICU 24-Family Satisfaction in the ICU 24©
FTE-Full-Time Employee
HMO-Health Maintenance Organization
HPMG-Hawaii Physicians Medical Group
ICN-International Council of Nurses
ICU-Intensive Care Unit
IOM-Institute of Medicine
IPAL-ICU-Improving Palliative Care in the ICU
IRB-Institutional Review Board
IRMEC-Interregional Medical Ethics Committee
KFH-Kaiser Foundation Hospital
KFHP-Kaiser Foundation Health Plan
KP-Kaiser Permanente
M-Mean
MICU-Medical ICU
NQF-National Quality Forum
PAL-Palliative Care
PICO-Patient, Intervention, Comparison, Outcome
Pt(s)-Patient(s)
RCT-Randomized Controlled Study
RN-Registered Nurse
RT-Respiratory Therapist
SE-Standard Error
SICU-Surgical ICU
TICU-Transformation of the ICU
TJC-The Joint Commission
VHA-Volunteer Hospital Association
WHO-World Health Organization
Chapter 1. Introduction

This chapter is an introduction and overview to the study. It is organized into six major sections and begins with the study’s purpose. The background and the significance of the study are then discussed, followed by the research question. This chapter ends with a synopsis of the results in a brief summary.

Purpose

The purpose of this project was to implement and evaluate a structured, palliative care (PAL) program in the intensive care unit (ICU) at Kaiser Permanente Medical Center in Hawaii. The overall goal was to incorporate palliative care principles into the routine ICU care and increase the numbers of palliative care consultations when necessary, thereby, improving the utilization of palliative care services, and improving the end-of-life care for patients and their families. In order to reach this goal, standards based on the available evidence were used to generate a proactive ICU family meeting and then, if necessary, a palliative care consult within an appropriate time frame.

Background

Hospital-based palliative care services have been evolving since the late 1980s, and as of 2008, approximately 31% of all US hospitals provided some type of palliative care within the inpatient setting (Campbell, 2006; Casarett et al., 2011). Palliative care is medical care that enhances quality of life for patients living with serious advanced illness, by helping to align their treatment choices with their values. It is defined by the World Health Organization (WHO), as an approach that improves the quality of life of patients and their families facing problems associated with life-threatening illness. This is achieved through the prevention and relief of
suffering by means of early identification, assessment, and treatment of pain and other physical, psychosocial and spiritual problems (Mirel & Hartjes, 2013; WHO, 2013). A palliative care team helps to: determine patient goals and align the medical care with those goals; procures resources for symptom management; assists with advanced care planning; partners with the patient to create a plan of care; ensures the patient has a safety net under him or her by using all of the available resources in the system; and educates others about the palliative care approach (Kaiser, 2010). Despite this list of objectives, palliative care has been traditionally used late in the care of patients when all life-prolonging interventions have failed and death is imminent (Norton et al., 2007).

Kaiser Permanente Medical Center in Hawaii has been in the process of initiating and integrating a palliative care consult into the routine flow of in-patient care, and also has tools in place for the nursing staff to recommend to patients and families that could assist in the initiation of a palliative care consult. Despite these existing resources, there was no structure or process in place in the in-patient setting that determined when Goals-of-Care or end-of-life discussions should be initiated. It was only when significant end-of-life issues arose, that the palliative care team was brought in to assist with patient and family problems. This was also evident in the ICU. The palliative care team was not utilized in this arena in an appropriate manner, and in the instances in which they were consulted, it was usually only in cases of suspected futile care. This underutilization of palliative care services in the ICU was consistent with findings from the literature in various units across the country (Bakitas et al., 2009; Bradley & Brasel, 2009; Campbell & Guzman, 2003; Jox et al., 2012; Mirel & Hartjes, 2013; Norton et al., 2007).
In the ICU, palliative care concepts remained misunderstood, and there was limited ability of nursing staff to articulate either its definition or its scope of practice. The ICU staff had minimal guidance on either initiating, or understanding the process involved with palliative care. Therefore, the development of standards toward incorporation of palliative care principles, and the utilization of the palliative care team on a regular basis was perceived to benefit all parties.

For a number of reasons, the ICU was an appropriate venue for a palliative care program, and its traditionally high mortality rates presented a natural opportunity in the effort to improve the quality of end-of-life care. There was also evidence of a quality gap, in which families queried about the dying process for relatives in the ICU, frequently reported opportunities for improvement surrounding both communication and comfort for their loved ones (Kahn, 2012; Levy & McBride, 2006; Nelson, 2006; Nelson et al., 2010a; Nelson et al., 2013b). Finally, and most practically, ICU clinicians have considerable experience assessing patient comfort and withdrawing life-sustaining therapies, and, as a result, the ICU has been increasingly recognized as a palliative care tool in itself (Kahn, 2012).

**Significance**

With the rise in our aging population comes an increase in the prevalence of serious age-associated chronic conditions such as cancer, chronic obstructive pulmonary disease, congestive heart failure, and end-stage renal disease (Wu, Lorenz & Chodosh, 2008). Also seen, is a large and growing population of patients who survive acute critical illness, only to become “chronically critically ill”, with profound debilitation, sometimes months of hospitalization, and often permanent dependence on life-sustaining technology (Nelson et al., 2004). Patients who live with these chronic illnesses have an increased likelihood of an acute exacerbation of their
condition, often resulting in an unexpected hospitalization. The ICU provides treatment for both pre-existing and acutely exacerbated chronic illness, but critically ill patients admitted to the ICU often have prolonged stays and poor outcomes (Lustbader et al., 2011).

An ICU is a consolidated area in a hospital where patients with serious life-threatening illnesses or injuries receive around-the-clock specialized medical and nursing care, such as mechanical ventilation and invasive cardiac monitoring (Mirel & Hartjes, 2013). Despite resource-intensive treatments, outcomes for patients admitted to the ICU remain poor, with high rates of mortality (averaging 10-20% in most US hospitals), and with extreme functional dependence among chronically ill survivors (Leapfrog, 2012; Mirel & Hartjes, 2013; Nelson et al., 2004).

The advances in technology and the availability of life support have markedly increased the complexity of end-of-life decision-making (Johnson et al., 2012). These chronically ill patients often die with distressing symptoms, while sometimes receiving unwanted, burdensome care. It is now increasingly accepted that continued aggressive care may not always be beneficial (SUPPORT, 1995; Thompson et al., 2004; Walling et al., 2010). Less than 25% of Americans have completed an Advance Directive, and many chronically ill patients have not designated or discussed their end-of-life preferences with a surrogate decision maker. Without clear direction from patients, surrogate decision makers are burdened with determining care that may or may not reflect the patient’s actual wishes. Timing of the discussion has also been a problem for both patients and providers. Dialogue during hospital admission for an acute health problem has been particularly difficult and fraught with conflicting emotions and distractions (Johnson et al., 2012).
Evidence has demonstrated the benefits of early identification of Goals-of-Care that are aligned with a patient’s preferences, and the importance of end-of-life care in the ICU. As a result, the mission of an ICU has expanded to incorporate palliative care principles in a move to provide the best possible care to these patients and their families (Leapfrog, 2012; Nelson et al., 2010a; Thompson et al., 2004).

Clinical Question

The clinical question for this project was constructed and refined over time. The clinical question was: Will the initiation of a palliative-care standardized program increase the numbers of ICU family meetings, and palliative care consultations, for newly admitted adult intensive care patients, and improve the early identification of Goals-of-Care and quality of end-of-life care in the intensive care unit?

The components of the foregoing question (Dearholt & Dang, 2012) consisted of the following: a) what would be the best evidence-based palliative care model to integrate into the ICU? b) what types of screening tools would be needed for both admission and daily screening of patients in ICU? c) which set of guidelines would be the most efficacious for the ICU? d) which metrics and quality indicators could be used to monitor outcomes?

Summary

Following the framework from the Iowa Model of Evidence-Based Practice, a new initiative with its developed guidelines was implemented at Kaiser Permanente Medical Center ICU in Hawaii. Staff education commenced utilizing the principles from the Diffusion of Innovations by Rogers (2003), and three months of both pre- and post-interventional data were
collected for the purposes of this project. Data included operational and process measures along with results from both family and nursing surveys.

The data showed the expected outcome of increased identification of Goals-of-Care, and code status, by day three of meeting the predetermined trigger criteria. This trigger criteria was designed to initiate the early identification of Goals of Care, surrogate, Advance Directives, and code status. With the increased awareness of the necessity of early identification of these aforementioned outcomes, came an improved recognition of the need for a proactive ICU family meeting. This was reflected in the increase in numbers of ICU family meetings performed during the interventional phase. A proactive PAL family meeting resulted when there were ongoing issues that could not be resolved easily during the ICU family meeting. Therefore, the numbers of proactive PAL family meetings also increased as a result of the intervention. Results from the family surveys were generally positive, along with those from the RN surveys. It was concluded that this study demonstrated the value of a palliative care program to the patient, family and ICU staff.

The integration of palliative care standards within the ICU at Kaiser Permanente Hawaii was successful in demonstrating that the basic principles could be assimilated into the daily routine ICU care. It was shown that it was possible to utilize the numerous resources and support available, to construct and initiate a structured palliative care program in the ICU. We were able to successfully incorporate and operationalize basic core palliative care measures with the observed significant increase of early identification of Goals-of-Care, code status, and increased use of printed material. This led to an increase in the proactive ICU family meetings, and a resultant increase in changes in code status and treatment after the meetings. The numbers of
PAL consultations also rose accordingly. This heightened awareness of the need for early identification of key elements of the process, and the facilitation of the ICU family meetings, through this intervention, coupled with the increase in staff competence and knowledge, were of both academic and clinical significance. Despite the short span of time, the significant increase in knowledge and process-testing scores, along with the substantial rise in palliative care charting gave credibility toward the innovation process framework that was utilized to produce the culture change.

The results from this project have a number of implications. The promotion of evidence-based practice, in which the basic palliative care principles were embedded within the traditional care of the ICU, can provide the opportunity to make necessary treatment changes by the ICU team itself, thereby sometimes attenuating the need for the PAL team. This allows the PAL team to be utilized appropriately in those cases which need specialized attention. The potential for cost savings from the implementation of these basic palliative care principles is seen in the decrease in length of both ICU and hospital stay. These early identification processes have the ability to be added to the existing electronic medical record (EMR) to potentially assist in streamlining flow-sheet charting, if and when administration deems this necessary. The implication for further staff education in end-of-life management, along with the need for further research is evident, and finally the potential for an increase in futile care at the end-of-life, fuels the need for the implementation of policies which include palliative care, both on a local and national level to address this difficult issue.
Chapter 2. Problem

Conceptual Framework

There are many models that can be utilized for evidence-based practice (EBP). The Iowa Model of EBP in Figure 1, focuses on organization and collaboration, incorporating the use of research, along with other types of evidence. This model emphasizes knowledge and problem-focused triggers, which result in the questioning of current nursing practices, and also in whether care can be improved through the use of current research findings (Titler et al., 2001). There are seven general steps to the model: 1) selection of a topic, 2) forming a team, 3) evidence retrieval, 4) grading the evidence, 5) developing an EBP standard, 6) implementing the EBP, and 7) evaluation.

Figure 1.

The Iowa Model of Evidence-Based Practice (Titler et al., 2001)
Selection of a topic. The Iowa Model of EBP begins with the selection of a topic that triggers the need for change. A problem-focused trigger can be a clinical problem or a risk-management issue, and a knowledge-focused trigger might be new research findings or a new practice guideline (Titler et al., 2001). The problem-focused triggers identified for this project included: a) underutilized, evidenced-based tools on Advanced Directives and end-of-life care, that were currently available for staff; b) an underutilized, existing palliative care team; c) lack of standards for the incorporation of palliative care into the ICU; d) frontline staff’s lack of understanding of palliative care principles; and e) a current administrative agenda to increase the use of the palliative care team and improve end-of-life care.

The knowledge-focused triggers for this project included: a) the Center to Advance Palliative Care guidelines for designing and implementing a palliative care program in ICUs, as part of their IPAL-ICU initiative (CAPC, 2013); b) traditionally high mortality rates in ICUs, which therefore presented a natural opportunity in the effort to improve the quality of end-of-life care (Kahn, 2012); c) evidence in the literature of a quality gap in which families, when queried about the dying process for relatives in the ICU, frequently reported opportunities for improvement surrounding both communication and comfort for their loved ones (Nelson et al., 2011); d) existing need for a decision-making process in the ICU (Nelson et al., 2011); and e) ICU clinician experience assessing patient comfort, and withdrawing life sustaining therapies (Kahn, 2012).

Organizational priority. This project was approved by the administration at Kaiser Permanente, and there were a number of factors that made this an organizational priority. One of these factors included the potential to increase staff. The palliative care physician team was made
up of five board-certified physicians. There was one full-time employee (FTE) allotted to the physician staff, and, by their own estimation, all shared the workload of closer to three FTEs. The possibility existed that formalizing this program could assist in justifying funds to increase the FTEs for both the physicians and RNs.

Although the potential for increased funding existed, the health-care environment at the time necessitated the integration of basic palliative care principles into the routine aspects of the delivered care. As the demand for palliative care services increases, it will be necessary to utilize the palliative care team as a specialty service, as opposed to having them care for all those in need (Quill & Abernethy, 2013). This project provided the opportunity to re-enforce some of the basic core elements of palliative care that could be delivered by any practitioner.

Patient and family satisfaction were also a driving force at Kaiser, and improved communication and satisfaction levels with end-of-life issues had the potential for a positive influence on the membership (Walling et al., 2010). Finally, though the impact of palliative care on the length of stay in the ICUs was still being fully determined in the literature, if the Goals-of-Care could be aligned early in the course of therapy, there was evidence to show that unnecessary or futile care could sometimes be attenuated, and thereby result in a cost savings for all parties (Meier & McCormick, 2013).

**Identification of stakeholders.** The primary stakeholders were those essential to the survival and well-being of the ICU and the Kaiser organization (Shirey, 2012). For the purposes of this project, they were all internal to the Kaiser Permanente Medical Center in Hawaii.

The stakeholder list included the palliative care team, ICU physician team, ICU RN staff, respiratory therapy (RT), ICU ancillary staff, ICU nursing supervisor, ICU clinical coordinator,
hospital administration, Chief Nursing Officer (CNO), Director of Specialty Services, surgery, cardiology, thoracic, oncology and other specialty attending physicians, who admitted patients to ICU, ICU patients and families, ICU social worker, ethics committee member, and risk-management (Nelson et al., 2013b).

In order to plan and execute an organizational change initiative, a stakeholder analysis and mapping as described by Shirey, (2012), and seen in Figure 2, was performed. The stakeholder mapping matrix was used to plot stakeholders based upon their stake and influence relative to the change initiative. The four quadrants of the matrix included the, “manage”, “tell”, “engage”, and “consult” sections (Shirey, 2012).

Figure 2.
Stakeholder Mapping

<table>
<thead>
<tr>
<th>Manage quadrant</th>
<th>Engage quadrant</th>
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<tbody>
<tr>
<td>• Administration</td>
<td>• Chief Nursing Officer</td>
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<tr>
<td></td>
<td>• Nursing Supervisor</td>
</tr>
<tr>
<td></td>
<td>• Director of Specialty Services</td>
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<tr>
<td></td>
<td>• ICU Physician Team</td>
</tr>
<tr>
<td></td>
<td>• Palliative Care Team</td>
</tr>
<tr>
<td></td>
<td>• ICU Clinical Coordinator</td>
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<table>
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<tr>
<th>Tell quadrant</th>
<th>Consult quadrant</th>
</tr>
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<tbody>
<tr>
<td>• ICU Ancillary Staff</td>
<td>• ICU RN staff</td>
</tr>
<tr>
<td>• RT</td>
<td>• ICU Social Worker</td>
</tr>
<tr>
<td>• Patients and Families</td>
<td>• Ethics Committee</td>
</tr>
<tr>
<td></td>
<td>• Risk Management</td>
</tr>
<tr>
<td></td>
<td>• Other Specialty Physicians</td>
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Those in the “manage” quadrant were members with a low stake in the decision-making process, but who had a high level of influence. This included all of the administrators other than our CNO and Director of Specialty services. Reports to this group were through the CNO, approximately every 2 weeks.

The “tell” quadrant included individuals whose stake in the decision was low: this included the general public and ancillary staff. Communication in this quadrant was one-way, and generally informative in nature (Shirey, 2012).

The “engage” quadrant contained the stakeholders with the most vested interest, specifically those who shaped and directed decisions relative to the project (Shirey, 2012). Although the CNO and Director of Specialty Services belonged in this quadrant, they had no direct involvement in the project activity, and communication was through biweekly updates. Input and consensus from the physician teams, from both the ICU and palliative care, were imperative, since this process produced a direct impact on their flow of care. Though the nursing supervisor had minimal direct activity in this project, her input regarding practicality issues of bedside flow and implementation was necessary. The bulk of the activities were performed by the team leader and the ICU clinical coordinator. Progress specifics, issues, and concerns were sent to the nursing supervisor, ICU physician team, and palliative care team every two to three weeks during the planning phase, and then, every one to two weeks during the implementation phase.

The individuals in the “consult” quadrant had a large stake but little influence on outcomes. Staff were generally placed in this category, but plans were to engage the staff so that they had input. The ethics committee and risk-management were placed in this quadrant to be
kept informed, but not necessarily involved in the process. Specialty physicians, other than the ICU physicians who admitted to ICU, were included for input toward guidelines and implementation (Shirey, 2012). Necessary communication with this group was planned for every two to three weeks. The physicians, ethics-committee member, and risk-management were to be updated on the screening criteria, guidelines, and outcome metrics. The RN staff were to be kept informed on the same topics but in relation to the impact on their bedside flow.

**Formation of the team.** Forming a team was an important step in the overall process, and a multi-disciplinary approach was undertaken. The current EBP team members are included in Figure 3. The role designations utilized were adopted from Diffusions of Innovations by Rogers (2003). The opinion leader and team leader, was the individual who introduced the program. The change agents were the individuals who influenced innovation-decisions in a direction deemed desirable, and the innovators were the first to adopt the process (Rogers, 2003).

**Figure 3.**

Evidence-Based Practice Team Members

<table>
<thead>
<tr>
<th>EBP Team Members</th>
<th>Role</th>
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<tbody>
<tr>
<td>Eluned Mun MS, MSN, APRN</td>
<td>Team leader, opinion leader, innovator</td>
</tr>
<tr>
<td>Tracy McCarty BSN, RN</td>
<td>ICU Clinical Coordinator, change agent</td>
</tr>
<tr>
<td>Ruth Ruta MSN, RN</td>
<td>Day shift staff representative, change agent, innovator</td>
</tr>
<tr>
<td>Cindy Machado BSN, RN</td>
<td>Night shift staff representative, change agent, innovator</td>
</tr>
<tr>
<td>James Mahoney BSN, RN</td>
<td>Day shift staff representative, innovator</td>
</tr>
<tr>
<td>Denise Kong, BSN, RN</td>
<td>ICU Supervisor</td>
</tr>
<tr>
<td>Genia Parlet BSN, RN</td>
<td>Palliative care RN, change agent, innovator</td>
</tr>
<tr>
<td>Craig Nakatsuka MD</td>
<td>Palliative care MD, external advisor, mentor</td>
</tr>
<tr>
<td>Lillian Umbarger MS, MD</td>
<td>ICU MD, ethics-committee representative</td>
</tr>
</tbody>
</table>
Barriers to implementation were anticipated from the ICU staff, who may have seen this project as another attempt to add more work to their already-full, bedside routine (Gerrish et al., 2012). There were a total of three ICU nurses representing days and nights, along with the ICU clinical coordinator who was a former night-shift staff member, as part of the team. An initial meeting with the palliative care team to notify them of plans, goals, and time frame for the project resulted in the palliative care RN joining the team. The initial ICU meeting with the lead ICU physician, palliative care physicians and team members, was also convened. This was necessary to explain the project, goals, process, and time frame as described by Green and Aarons (2011), along with the evidence surrounding the major models, screening criteria, and potential outcomes.

**Literature Critique & Synthesis**

Despite palliative care being a relatively new field in clinical medicine, there was a considerable amount of literature that reported on issues related to the need for improved identification of Goals-of-Care and end-of-life care. The publications focused on the various aspects of initiating a palliative care program in an ICU. These included benefits, various models, screening tools, guidelines/standards, evaluation tools, metrics, barriers, and cost. There was also a moderate quantity of data regarding the importance of family satisfaction with the end-of-life care provided for patients (Morrison et al., 2008; Nelson et al., 2010a; Nelson et al., 2010b; Nelson et al., 2010c; Nelson et al., 2010d; Weissman & Meier, 2008; Weissman & Meier, 2011; Weissman, Meier & Spragens, 2008; Weissman, Morrison & Meier, 2010).

An electronic search was completed using PubMed, CINAHL, Cochrane Data Bases, and the National Quality Forum (NQF) databases. Search terms included “ICU”, “intensive care
unit”, “critical care unit”, “palliative care consult”, “palliative care service”, “end-of-life care”, “palliative care”, “comfort care”, “supportive care”, “model”, “screening”, “guidelines”, “outcomes”, “measurements”, “cost”, and “metrics”. A total of 62 publications from 1995 to 2013 were examined. These were further narrowed down, and 27 were utilized for the purposes of this review.

Mosby’s Quality of Evidence was used to grade the level of evidence and internal validity. This grading system assigned the studies to one of eight levels seen in Figure 4. “Other” included quality performance improvement and review of the literature (Mark, 2013). Clinical practice guidelines (CPGs) were also added to the “Other” category as they played a significant role in formation of practice recommendations for this project. The synthesized reports were ranked according to the eight levels of evidence presented in Figure 5 (Melnyk, 2004).

Figure 4.
Mosby’s Level of Evidence (Mosby, 2004)
The critiquing tools used, included Mosby’s Research Critique Form (2004), the Rapid Critical Appraisal of Randomized Controlled Trials (RCTs) by Melnyk and Fineout-Overholt, (2005), and the Appraisal of Guidelines for Research and Evaluation (AGREE) II instrument for the evaluation of clinical practice guidelines (Brouwers et al., 2010). The AGREE II instrument was used to evaluate each of the CPGs. It utilized a ranking system of an assigned grade 1-7 within six different domains that were designed to assess the methodological rigor, and transparency with which a guideline was developed. These domains included: 1) scope and purpose, 2) stakeholder involvement, 3) rigor of development, 4) clarity of presentation, 5) applicability, and, 6) editorial independence. For the purposes of citation in this review, the percentages assigned to each domain were averaged into one representative score, up to 100%
The scores of the nine CPGs used in this synthesis are presented in Table 1.

Table 1

Clinical Practice Guideline AGREE II Scores

<table>
<thead>
<tr>
<th>Reference</th>
<th>Score (%)</th>
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<tbody>
<tr>
<td>Mularski et al., (2006)</td>
<td>82</td>
</tr>
<tr>
<td>Nelson et al., (2010b).</td>
<td>77</td>
</tr>
<tr>
<td>Nelson et al., (2010c).</td>
<td>83</td>
</tr>
<tr>
<td>Nelson et al., (2010d).</td>
<td>78</td>
</tr>
<tr>
<td>Truog et al., (2008).</td>
<td>71</td>
</tr>
<tr>
<td>Weissman &amp; Meier, (2008).</td>
<td>76</td>
</tr>
<tr>
<td>Weissman &amp; Meier, (2011).</td>
<td>81</td>
</tr>
<tr>
<td>Weissman, Meier, &amp; Spragens, (2008).</td>
<td>82</td>
</tr>
<tr>
<td>Weissman, Morrison, &amp; Meier, (2010).</td>
<td>77</td>
</tr>
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The majority of the reports were CPGs that follow the standards from the National Quality Forum (NQF) within its Framework and Preferred Practices for Palliative and Hospice Care, and the National Consensus Project for Quality Palliative Care. These standards were operationalized by the Center to Advance Palliative Care (CAPC) with their Improving Palliative Care in the ICU (IPAL-ICU) Project (Ferrell et al., 2007; Lanken et al., 2008; Mularski et al., 2006; Nelson et al., 2010a; Truog et al., 2008; Weissman & Meier, 2008; Weissman et al., 2010). Ferrell et al. (2007) reported on the release of these NQF preferred practices in an expert opinion paper that was included in this synthesis. They provided a useful historical overview, endorsing organizations, and a full listing of the 38 preferred practices shown in Appendix A (Ferrell et al.,
2007, level VII). The CPGs provided by the IPAL-ICU Project, a web-based resource sponsored by the National Institute on Aging, the CAPC, and the major critical care societies and other nationally funded groups such as the Robert Wood Johnson Foundation Critical Care End-of-life Peer Workgroup, were designed to offer a framework, along with practical steps, for the development of a palliative care initiative in an ICU (CAPC, 2013; Mularski et al., 2006, CPG 82%; Truog et al., 2008, CPG 71%; Wiedermann, Lehner & Joannidis, 2012).

These steps were essential to the integration and improvement of palliative care in specific health-care settings. They included: convening an interdisciplinary workgroup to plan and lead the effort; assessing the needs and resources for improving palliative care in a particular ICU; developing an action plan to address existing needs in the context of available resources; and, engaging the interdisciplinary ICU team to create a culture supporting palliative care improvement. The CPGs also reviewed the two major models of palliative care, along with screening and trigger criteria, guidelines and standards, and methods for an evaluation of a program (Nelson et al., 2010b, CPG 77%; Nelson et al, 2010c, CPG 83%; Nelson et al, 2010d, CPG 78%; Weissman & Meier, 2008, CPG 76%; Weissman & Meier, 2011, CPG 81%; Weissman et al., 2008, CPG 82%; Weissman et al., 2010, CPG 77%). These CPGs all met high quality ratings among the first five domains of the AGREE II instrument. The last domain was generally not addressed, and subsequently decreased the overall scoring.

The remaining literature synthesized in this review included a number of systematic reviews, one RCT, and several observational, descriptive and expert opinion papers. Several of these papers were used despite being published earlier than the CPGs, due to the fact that they dealt with subject matter not mentioned in later reports.
**Model of palliative care integration.** Each ICU has an intrinsic and specific “culture” created by its history, structure, policies and processes of care, and by the attitudes and interactions of different disciplines on the critical-care team (Mosenthal et al., 2012). The literature noted two major models of palliative care; the “consultative model” and the “integrative model” (Nelson et al., 2010a).

These major models were discussed in depth, by Nelson et al. (2010a) in a systematic review that was designed to describe the models used in successful clinical initiatives to improve the quality of palliative care in the ICU setting. These models were not mutually exclusive but rather represented the ends of a spectrum of approaches. On review of the advantages and disadvantages of each, it was noted that an ideal approach was one that combined elements of the two. In addition, both models, and variations of the two, have been utilized successfully in both the medical ICU (MICU) and surgical ICU (SICU) setting (Mosenthal et al., 2012, level I; Nelson et al., 2010a, level I). Smith, Coyne and Cassel (2012) discussed the two types of models from the standpoint of an in-patient versus out-patient setting, in a concise, expert opinion paper. They agreed that the consultative model was the easiest program to start and maintain (Smith, Coyne & Cassel, 2012, level VII).

The selection of a model then, is considered one of the earliest steps in planning an ICU-palliative care initiative (Nelson et al., 2010a). The actual role of the consult service varies with local customs and culture, but the focus tends to be on issues such as goal-setting, challenging care decisions regarding the use of life-sustaining treatments, withdrawal of unwanted life prolonging therapies, do-not-resuscitate (DNR) designation, conflict resolution, and transitional
Screening/trigger criteria. Criteria for screening then needed to be established. The CAPC IPAL-ICU consensus panel determined that identifying patients with unmet palliative care needs was important, both at the time of admission, but also during the trajectory of the hospital course. As a result, two major representative groups published a systematic review and a set of CPGs, designed to address the selection of trigger criteria. Nelson et al. (2013b) reviewed the use of screening criteria as a mechanism for engaging palliative care consults in the ICU. They determined that the use of specific criteria to prompt a proactive referral for a palliative care consultation, reduced utilization of ICU resources without changing mortality, while increasing involvement of the palliative care specialist for patients and families in need (Nelson et al., 2013b, level I).

Weissman and Meier (2011) recommended that two checklists, divided into primary and secondary criteria to facilitate ease of implementation, be developed. Selection of the indicators for these checklists were based on national standards, research findings, and expert opinions from the consensus panel (Weissman & Meier, 2011, CPG 81%).

There were many identified triggers that have been utilized by various specialty ICU units (Bradley & Brasel, 2009). Mosenthal et al. (2012) also reviewed the use of “triggers” from a SICU perspective, in which referral for palliative care consultation was typically dependent upon the attending surgeon. They felt that the optimal use of trigger criteria had not yet been fully demonstrated in this setting, and that the triggers might have been more successful in the SICU if the criteria were applied to specific diseases (Mosenthal et al., 2012, level I).
Guideline development and evaluation. In several areas of ICU practice, performance improvement has been approached by grouping evidence-based processes into “bundles” of measures that are applied together, for a fuller assessment of the quality of care (Nelson et al., 2006b; Penrod et al., 2012). The development of care bundles is designed to bring evidence-based literature into bedside management, and create best-practice guidelines for specific disease processes common to ICU patients. By grouping evidence-based procedures and therapies into bundles, which are meant to have a synergistic impact on outcomes, providers are able to ensure uniform application of the best-practices to all patients. Utilizing care bundles greatly enhances the probability that all patients who should receive such care, do. Furthermore, by examining the reasons why some patients did not receive components of the bundle, a built in performance improvement process is in place (Winters & Dorman, 2006).

This strategy was employed by the Volunteer Hospital Association (VHA) in their “Transformation of the ICU” (TICU) program, a performance improvement initiative, to organize their quality measures into bundles. The resultant “Care and Communication Bundle” was developed to measure adult ICU palliative care quality, and was described by Nelson et al. (2010b) in their report on Defining Standards for ICU Palliative Care. These resulting bundle guidelines and recommendations provided validated measures addressing multiple domains of ICU palliative care quality, and were consistent with standards established by the National Consensus Project for Quality Palliative Care, and the NQF for palliative care across clinical settings (Nelson et al., 2010b, CPG, 77%; Penrod et al., 2012; Truog et al., 2008).

The TICU Care and Communication Bundle was designed to assist in the development of measures, utilizing a process approach, for routine monitoring of, and performance feedback of,
the quality of palliative care across a broad range of ICUs. It also set a base, in which to create a set of standards or guidelines for a new palliative care program in the ICU. Within the bundle framework, were identified ICU palliative care processes that are associated with desirable outcomes, a list of indicators with corresponding quality measures, a measurement guide containing specifications, definitions for the numerators and denominators of the measures, and finally a data tool (Nelson et al., 2006b).

In a descriptive study, investigators looked at the use of the IPAL guidelines in MICUs and SICUs to increase palliative care consultation numbers. They concluded that the IPAL-ICU project framework and recommendations could be effectively used to increase the number of palliative care consults in the ICU (Sihra, Harris, & O'Reardon, 2011, level VI).

Investigators in a later observational study looked at the frequency in which the Care and Communication Bundle processes were performed in diverse ICUs, to understand patient factors that were associated with such performance. They found that, although resources and strategies were available, performance of key palliative care processes, other than pain management, were inconsistent and infrequent (Penrod et al., 2012, level IV).

**Outcomes and metrics.** Data collection and analysis are necessary to assess the effectiveness of a program. They are essential when planning for program-staffing, and to accommodate growth in demand for services, and other types of strategic designs. They are also necessary for quality-improvement, program sustainability, and to demonstrate a palliative care program’s impact on major stakeholders (Weissman et al., 2008).

There was a considerable amount of literature on process and outcome measures and metrics. Weissman, Meier and Spragens (2008), as part of the CAPC IPAL-ICU expert panel,
published the NQF Framework for Preferred Practices for Palliative and Hospice Care Quality: A Consensus Report, along with the four domains for key outcome measures. These included overall and individual reports on operational, clinical, customer-satisfaction, and financial metrics (Weissman & Meier, 2008, CPG 76%; Weissman, Meier & Spragens, 2008, CPG 82%; Weissman, Morrison & Meier, 2010, CPG 77%).

The success of interventions can be determined by looking at process and outcome measures as evaluation tools. Process measures refer to interactions between the patient, and healthcare institution or provider, such as charting a daily pain assessment. Outcome measures refer to a patient’s subsequent health status, such as a reduction in symptom distress (Weissman et al., 2010). The differences between the two types of measures have been well described in a literature review by two major experts in the field of palliative care. These experts also provided examples of a number of validated instruments that can be used to evaluate patient, family, and clinician experiences (Curtis & Engelberg, 2006, level-literature review).

Nelson et al. (2010c) reviewed the advantages and disadvantages of different quality measures, and the domains for measurement of ICU palliative care quality. They showed how the domains of quality were made operational as specific measures, each with a numerator and denominator (Nelson et al., 2010c, CPG 83%). They also examined the use of data relating to mortality, utilization, and care process, and provided good examples in each of these categories (Nelson et al., 2010d, CPG 78%).

The Robert Wood Johnson Foundation Critical Care Workgroup published a concise guide that proposed fourteen measures to assess processes of care at the patient level, and then four processes to explore structural aspects of critical care delivery. In each of their measures,
they defined the indicator, gave examples of the numerator and denominator, the unit of analysis, intended sample, exclusions, data source and collection method, and the primary source (Mularski et al., 2006, CPG 82%).

Several studies that evaluated different outcomes were also used in this synthesis. One of the four observational studies was a retrospective comparison of two cohorts (Lustbader et al., 2011). Lustbader et al. (2011) were able to show that a palliative care consultation, reduced time until death during the entire hospitalization ($p < 0.01$), along with a reduction in the time from MICU admission until death ($p < 0.01$). The intervention group also contained a significantly higher percentage of patients with a DNR designation at death, than did the control group ($p < 0.0001$) (Lustbader et al., 2011, level IV).

The systematic review by Scheunemann et al. (2011) had good internal validity, with an acceptable sample size of 180 inclusive references. It affirmed supporting evidence for printed information and structured communication by the ICU or palliative care team. This improved end-of-life care, and family satisfaction, along with impacting on length of stay, and treatment intensity (Scheunemann et al., 2011, level I).

Although, Palliative Care Consultation in the ICU #253 was an expert opinion “listing”, it was included in this synthesis since it was a good compilation of all the pertinent facts on the role of palliative consultation in the ICU. It also provided research data on the benefits of a palliative care ICU consultation (Campbell, Weissman & Nelson, 2012, level VII).
End-of-life care. The remainder of the reports used in this synthesis provided background information on end-of-life care, hospital variations and trends, barriers to optimal end-of-life care, financial impact, and in-patient palliative care units.

In a consensus statement from the American College of Critical Care Medicine, Truog et al. (2008) provided an overview of recommendations to improve the care of ICU patients during the dying process. They discussed the ethical principles and practical aspects related to the withdrawal of life-sustaining treatments, along with a good review of symptom management during end-of-life care, and other considerations at the time of death (Truog et al., 2008, CPG 71%).

Supporting evidence from large randomized trials (RCTs) was limited. Curtis et al. (2011) randomized twelve hospitals but the intervention was targeted at changing the behavior of the clinicians, while looking for an improvement in the patient and family outcomes. As a result, they found no improvement in the quality of end-of-life measures, and concluded that efforts to improve end-of-life experiences required direct involvement in the care of the individual patient and family (Curtis et al., 2011, level II).

In another observational study, Decato et al. (2013) looked at hospital variation and temporal trends in palliative care and end-of-life care in the ICU. They found significant differences between hospitals for all chart-based indicators ($p < 0.001$), family satisfaction ($p < 0.001$), family-related quality of dying ($p = 0.03$), and nurse-related quality of dying ($p = 0.003$). There were few significant changes in these measures over time, although they found a significant increase in pain assessments in the last 24 hours of life ($p < 0.001$), as well as decreased documentation of family conferences ($p < 0.001$) and discussion of prognosis ($p = \ldots$
0.020), in the first 72 hours in the ICU. There was significant, inter-hospital variation in ratings and delivery of palliative care, which was consistent with prior studies showing variation in intensity of care at the end of life, but there was no evidence of temporal changes in most aspects of palliative care, family satisfaction, or nurse/family rating of the quality of dying (Decato et al., 2013, level IV).

Two literature reviews were selected for inclusion in this synthesis. Kahn (2012) summarized a framework for end-of-life quality, which embraced the NQF-endorsed quality measures for end-of-life care involving the ICU, and the challenges and strategies for end-of-life quality-improvement (Kahn, 2012, level-literature review). Wiedermann, Lehner, and Joannidis (2012) discussed the need to improve the transition from full, active treatment to either a limitation of care, or withdrawal of care. They also looked at the difficulties in surrogate decision-making in the ICU, the role of the nurse in preparing the family for the role of surrogate, and how to maximize family understanding and minimize avoidable distress (Wiedermann, Lehner & Joannidis, 2012, level-other).

In a slightly older descriptive study, Nelson et al. (2006a) examined the views and experiences of ICU directors regarding barriers to optimal end-of-life care. They explored the type, availability and perceived benefit of specific strategies that could improve care. They found that important barriers included: unrealistic patient/family expectations, inability of patients to participate in discussion, lack of Advance Directives, insufficient physician training in communication, competing demands on physician’s time, and institutional factors (Nelson et al., 2006a, level VI).
Hospital palliative care consultation programs have been associated with reductions in patient symptoms and higher family satisfaction with overall care. It has also been postulated that these programs reduce hospital costs. In an observational study, Morrison et al. (2008) found that a palliative care consultation fundamentally shifted the course of care off the usual hospital pathway, and, in doing so, significantly reduced cost. They felt that this shift was likely due to the establishment of clear treatment goals, reviewing current treatment to establish concordance with those goals, and recommending and legitimizing discontinuation of treatments that did not meet the established goals (Morrison et al., 2008, level IV).

The final descriptive study included in this synthesis, was a national comparison of end-of-life care between the use of consultative teams, versus a palliative care in-patient unit. The investigators found higher satisfaction scores from those who received a palliative care consultation, as opposed to those who did not, and then still higher scores from those who received care within a dedicated palliative care unit (Casarett et al., 2011, level VI).

**Summary of Literature Review.** Strengths and limitations were evident in both the general literature and in the CPGs. Although ICU culture and the incorporation of palliative care have changed considerably within the last 10-15 years, the numbers of RCTs in this arena remained somewhat limited, and therefore, meta-analysis was not an option (Scheunemann et al., 2011). Vulnerable groups are usually excluded from RCTs, and therefore true randomization of a palliative care service is difficult. Methodological and ethical concerns regarding withholding a potentially beneficial service to those in need often preclude randomization, and long-term outcome monitoring may not be in the best interests of the patient. RCTs also vary in quality and
may not be directly relevant to the clinical problem being addressed, and there are few studies that address patient-centered outcomes beyond mortality (Dunning et al., 2012).

Qualitative research provides important information and can complement findings from RCTs, but impairments of consciousness and capacity preclude data collection from ICU patients with the highest acuity of illness. Unfortunately, these are the individuals from whom perspectives relevant to palliative care are the most valuable (Dunning et al., 2012; Nelson et al., 2010a). Consequently, family-focused outcomes such as satisfaction, psychological wellbeing, and comprehension of information that are communicated by clinicians, are utilized in evaluating the quality of palliative care. Though this type of data can provide insights into experiences, beliefs, and stated practice patterns, it is indirect as compared to actual observation. Additionally, though the tools used to measure ICU family satisfaction are validated, the response rate to these surveys, tend to be low (Scheunemann et al., 2011). It is also very difficult to collect data of this type, particularly in ICU settings, where the time window for direct interviews or survey administration is often short, and families are distressed and distracted by the patients' critical illness (Nelson et al., 2006b; Nelson et al., 2010a).

The CPGs that were available to provide assistance in the initiation of a palliative care program, were all based on nationally set standards, and met the majority of the domains set in the AGREE II instrument. Where they fell short, were on procedures for updating the guidelines, clarity of strengths and limitations, and resource implications. A reason for the identified shortcomings was in part due, to an evaluation of the individual CPG rather than as an established set of reports.
The majority of CPGs were published in 2010-2011, and the publications since then were, for the most part, literature reviews and expert opinions. Nelson et al. (2013b) followed up on earlier reports and recommendations from the IPAL-ICU project. They published a subsequent systematic review to look at the use of recommended screening criteria as a mechanism for engaging palliative care consultants, in order to assist with care of critically ill patients and their families in the ICU. They concluded that the data and resources that can be used in developing such criteria, should be tailored for a specific ICU, implemented through an organized process involving key stakeholders, and evaluated by appropriate measures (Nelson et al., 2013b). In two previously discussed observational studies, Penrod et al. (2012) and Decato et al. (2013) found continued wide variability in end-of-life care despite available resources and effective strategies for performance improvement.

**Preliminary Recommendations**

The literature was extensive, yet specific regarding the steps to take for initiating a palliative care program in the ICU. There were significant numbers of CPGs available, the majority of which were representative of the standards adopted by the National Quality Forum within its Framework and Preferred Practices for Palliative and Hospice Care, and put into operation by the CAPC IPAL-ICU Project (Ferrell et al., 2007; Nelson et al., 2010a; Nelson et al., 2010b; Nelson et al., 2010c; Nelson et al., 2010d; Weissman & Meier, 2008; Weissman et al., 2010).

The practice guidelines all started with choosing a model for palliative care incorporation into an ICU. The “consultative model” focused on increasing the involvement and effectiveness of palliative care consultants in the care of ICU patients and families. The “integrative” model
sought to embed palliative care principles and interventions in daily practice by the ICU team, for all patients/families (Nelson et al., 2010a). There were advantages and disadvantages in both models, but the “consultative model” was the most prevalent model of palliative care service delivery in acute-care hospitals. It was particularly useful in those patients identified as a highest risk for poor outcomes, and was the most feasible in institutions with pre-existing palliative care teams (Nelson et al., 2010a).

The ICU at Kaiser decided to utilize the “consultative” model, since one of the goals was to improve the use of the existing palliative care team. However, we also incorporated some of the basic palliative care principles into the daily practice of ICU care. This was to ensure that the numbers of consultations to the palliative care team remained appropriate, while at the same time improving the level of routine palliative care management by the ICU physicians and nursing staff.

Screening/trigger criteria should be representative of the individual ICU. Many potential triggers have been reported, not only in the recommended CPGs, but also in the literature from both MICUs (Campbell, 2006; Campbell & Guzman, 2003; Lustbader et al., 2011), and SICUs (Bradley & Brasel, 2009; Mirel & Hartjes, 2013; Sihra et al., 2011). The three main criteria fell into the domains of disease, utilization, and other criteria, following recommendations from the IPAL-ICU consensus panel and the literature (Bradley & Brasel, 2009; Nelson et al., 2010a).

The Kaiser physicians representing both the palliative care team and the ICU were tasked with coming to a consensus on the trigger criteria that best characterized our ICU. Although the literature suggested both an admission and daily screening tool, and both with primary and
secondary criteria, we concentrated on one screening tool for ease in streamlining the implementation.

It was recommended that guidelines be initiated in a bundle form, to enhance best-practice. The TICU Care and Communication Bundle provided a base in which to create a set of standards or guidelines for a new palliative care program in the ICU (Nelson et al., 2006; Penrod et al., 2012). It utilized evidence-based care processes addressing established quality domains. Domains of quality are made operational as specific measures, each with a numerator and a denominator. In general, the numerator represents the number of patients receiving a care process or outcome that is to be evaluated as an indicator of quality. The denominator defines the total patient population. It is also typical to select subgroups with special risks or needs. Therefore the population targeted by the denominator for most of the measures was to be limited to those patients in the ICU for at least five days, which had been determined to be a practical risk marker for poor outcome among critically-ill adults (Nelson et al., 2006b; Nelson et al., 2010a; Weissman et al., 2010). Individual care processes were then to be triggered by specified days after admission to the ICU, with some processes performed by day one and others by day three or day five, as shown in Figure 6. This time-triggered strategy was designed to prompt timely performance of important processes for all ICU patients, while limiting the burden of data collection to patients with prolonged ICU stays (Campbell, 2006; Nelson et al., 2010a; VHA, 2013).

The literature recommended obtaining the code status, Advance Directives and surrogate by day one of admission to an ICU. At Kaiser, finalization of these measures within this time-
Figure 6.

Guideline Bundle

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<th>Guideline Bundle</th>
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<tr>
<td><strong>Day 1 in ICU</strong></td>
</tr>
<tr>
<td>Documentation of screening for palliative care needs on admission</td>
</tr>
<tr>
<td>Documentation of medical decision maker (surrogate)</td>
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<tr>
<td>Documentation of Advance Directive status</td>
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<tr>
<td>Documentation of resuscitation status (code status)</td>
</tr>
<tr>
<td><strong>Day 3 in ICU</strong></td>
</tr>
<tr>
<td>Documentation of proactive family meeting within 72 hours of ICU admission for high risk patients</td>
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<tr>
<td>Documentation of Social worker support offered</td>
</tr>
<tr>
<td>Documentation of Spiritual support offered to ICU patients/families</td>
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<tr>
<td>Documentation of informational handout on palliative care given to ICU patients/families</td>
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<tr>
<td><strong>Day 5 in ICU</strong></td>
</tr>
<tr>
<td>Documentation of interdisciplinary palliative care family meeting</td>
</tr>
<tr>
<td><strong>Daily</strong></td>
</tr>
<tr>
<td>Documentation of pain assessment-4 hour intervals or more frequently</td>
</tr>
<tr>
<td>Documentation of pain management-4 hour intervals or more frequently</td>
</tr>
<tr>
<td>Documentation of daily screening for palliative care needs</td>
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frame was questionable. At the time, the ICU social worker was responsible for the Advance Directives and surrogate, and the ICU physician, the code status. Due to the staffing patterns at that time, the social worker was only available on the weekday day-shift, and though an on-call social worker was available during the days on weekends, he/she covered the entire hospital and there was no night coverage. The EBP team members were in agreement that the RN staff could be educated to initiate the conversations regarding the code status, Advance Directives, and surrogate, utilizing the Goals-of-Care videos already available. In addition, guidelines were written to allow for leeway between days one through three. Identification, but not necessarily
completion, of surrogate, Advance Directives and code status were to be noted in the progress notes, and could be carried out by any clinical staff including, RN, MD and social worker. This could then trigger the need for a social worker consult on off-hours, which was traditionally left until a Monday morning, when the ICU social worker brought his or herself up to date.

The literature recommendation of a proactive, palliative care consultation by day three raised the concern that this could generate potentially unnecessary numbers of consultations for the palliative care team. Therefore, a proactive family meeting by day three was deemed possible, but facilitated instead by the ICU team and then, if still needed, a multidisciplinary, palliative care family meeting by day five could be initiated. At the time, informal family meetings conducted by the ICU team were performed frequently, but not in a scheduled proactive manner.

Quality of care can be evaluated on the basis of process or outcome. Processes generally refer to what we do for patients and their families. Process measures have a number of important advantages over outcome measures for assessing quality: they are more sensitive, practical, often require smaller samples size, and the information obtained can often be directly translated into action to improve quality of care. The validity and credibility of such measures, however, depends ultimately on showing that variations in the processes of interest are associated with improved outcomes (Nelson et al., 2006b). Unfortunately, end-of-life care in the ICU, as a science, is still relatively new and there are, as yet, no clearly defined process measures that have been irrefutably linked to better outcomes (Curtis & Engelberg, 2006).

The Care and Communication Bundle, like other ICU bundles, was composed of care process rather than outcome measures. These care processes addressed established domains of
ICU, palliative care quality, and the processes themselves have been specifically endorsed as important by ICU clinicians, patients and families (Nelson et al., 2006b; Penrod et al., 2012). The main focus of the care bundle included: a) identification of the decision-maker, b) addressing the Advance Directive status, c) addressing cardiopulmonary resuscitation status, d) designating when to distribute information leaflets, e) assessing pain regularly, f) managing pain optimally, g) offering of social work support, h) offering of spiritual support, i) organizing family meetings, and j) organizing ICU assessment with the family in a designated meeting room (VHA, 2013).

Outcomes represent the results achieved, which are often more important to patients and families than processes. Many of the conventional, quality outcomes such as morbidity and mortality are not actually relevant to end-of-life care. Instead, outcomes, such as symptom management and satisfaction with care, have more significance. The outcome measures that were used to evaluate end-of-life care in the ICU included: a) ICU length of stay and intensity of care; b) patient’s symptoms; c) family member’s symptoms associated with end-of-life care for the patient; and d) families’ and clinicians’ ratings of the quality of, or satisfaction with, care (Curtis & Engelberg, 2006).

The CAPC has recommended that, included in their outcome measures, programs should evaluate key operational, clinical, customer and financial data (Weissman et al., 2008; Weissman & Meier, 2009; Weissman et al., 2010). For clinical metrics, the CAPC consensus panel agreed upon four key measurement domains that represented the core of in-patient, palliative care clinical services. For customer metrics, consensus was reached around two domains to assess customer satisfaction, patient and family satisfaction, and referring clinician satisfaction.
The panel also recommended twelve domains of operational data that were specifically targeted to consultation-service, operational metrics. These could be derived easily from a short list of data points, could be gathered prospectively, and could be used for either internal programmatic use, or as external comparisons of service characteristics between different hospitals (Weissman et al., 2008). Examples of collectable data from these domains are presented in Figure 7.

**Figure 7.**

Data Metrics

<table>
<thead>
<tr>
<th>Domain</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operational metrics</strong></td>
<td>Date of consult, diagnosis, referring clinician/service, patient age, patient gender, disposition, hospital length of stay</td>
</tr>
<tr>
<td>• describe the characteristics of patients admitted to an in-patient unit</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical metrics</strong>-four measurement domains</td>
<td>Symptom control scores, psychosocial assessment scores</td>
</tr>
<tr>
<td>• assessment and management of physical/psychological/spiritual symptoms</td>
<td></td>
</tr>
<tr>
<td>• establishment of patient centered Goals-of-Care</td>
<td></td>
</tr>
<tr>
<td>• support to patient and family caregivers</td>
<td></td>
</tr>
<tr>
<td>• management of transitions across care sites</td>
<td></td>
</tr>
<tr>
<td><strong>Customer metrics</strong></td>
<td>Satisfaction survey data: patient, family, referring clinician</td>
</tr>
<tr>
<td><strong>Financial metrics</strong></td>
<td>Daily pre-consultation and post-consultation hospital cost, net loss/gain for in-patient deaths, case-mix index</td>
</tr>
</tbody>
</table>

Documentation of care processes were to be in the medical record and, as such, serve as potential sources of data for palliative care, quality measurements. Other potential resources
included administrative databases and direct interviews with patients, families, or clinicians (Nelson et al., 2006b; Nelson et al., 2010c; Weissman et al., 2010). There were also a number of validated measurement tools available for measuring patient-care quality and family satisfaction (Curtis & Engelberg, 2006).

The process and outcome measures were to be obtained from three separate sources. The majority of the data were available from the Electronic Medical Record (EMR). This data included all of the operational data such as patient age and gender, along with most of the process and outcome measures. The palliative care data were specific to the palliative care team, and was kept on a separate data base. The ICU also kept a separate Acute Physiology and Chronic Health Evaluation 3rd edition (APACHE III) data base that took into account both acute and chronic disease, and provided an estimate of ICU mortality based on a number of laboratory values and patient signs (Zimmerman et al., 1998). The APACHE III prognostic system is a severity-scoring system that can provide initial risk stratification for severely ill hospitalized patients within independently defined patient groups, and is used within ICUs to provide risk estimates for hospital mortality for individual ICU patients (Knaus et al., 1991).

A pre- and post-test was to be developed with the intention of evaluating staff knowledge of identification of Goals-of-Care, end-of-life care, palliative care, and general terminology. The test was to be administered to all staff prior to the onset of in-servicing and education. The test was to be administered again before official implementation, and then again after three months of implementation. The test was informal, and was designed to be a part of the ongoing clinical competency fairs that were held periodically for staff.
Chapter 3. Methods

Introduction

The integration of basic palliative care principles into the ICU at Kaiser involved the early identification of the patient’s Goals-of-Care, surrogate, Advanced Directives, and code or resuscitation status. This necessitated a modification of current procedures. A change in practice was piloted before adoption and entailed the following steps: a) selection of outcomes to be achieved; b) collecting baseline data; c) developing a written EBP guideline; d) trying the guideline with a small sample size; e) evaluating the process and outcomes of the trial; and f) modifying the guideline based on process and outcome data (Titler et al., 2001). Therefore, this section is devoted to the development of the evidence-based standards following the Iowa Model of Evidence-Based Practice. A description of these standards is included, as well as detailed information about the sample, procedure, and data collection plan. With the practice problem defined, a focused clinical question was formed using the patient population, intervention, comparison intervention, and outcome (PICO) format (Hall & Roussel, 2014, p. 256). The following, listed under objectives, are the PICO format, subsequent clinical question, purpose and goal for this project.

Objectives

P-Patient population: Adult patients newly admitted/transferred to the 15 bed ICU who meet criteria for a palliative care consultation.

I-Intervention: Initiation of evidence-based palliative care standards that includes admission and daily patient screening, pro-active ICU family meetings and palliative care
consultations, standards and guidelines individualized for the ICU at Kaiser, and ongoing evaluation of practice.

C-Comparison intervention: Current practice

O-Outcome: Integration of palliative care standards with an increased number of ICU family meetings and if necessary, palliative care consults, thereby increasing utilization of the palliative care team, early identification of Goals-of-Care, decreasing ICU length of stay, and improving overall end-of-life care for patients and families in the ICU (Casarett et al., 2011; Lustbader et al., 2011; Nelson et al., 2006b; Nelson et al., 2013b; Penrod et al., 2012; Sihra, Harris & O’Reardon, 2011).

Clinical Question: Will the initiation of a palliative care standardized program increase the numbers of ICU family meetings and palliative care consultations for newly admitted adult intensive care patients, and improve the early identification of Goals-of-Care and quality of end-of-life care in the intensive care unit (ICU)?

The components of this question were the following: a) what would be the best evidence-based palliative care model to integrate into the ICU? b) what types of screening tools would be needed for both admission and daily screening of patients in ICU? c) which set of guidelines would be the most efficacious for the ICU? d) which metrics and quality indicators could be used to monitor outcomes (Dearholt & Dang, 2012)?

Purpose: The implementation of evidence-based palliative care standards for the adult patients and their families in the Kaiser ICU that incorporate basic palliative care principles into the routine ICU care, improve the utilization of the existing palliative care team, improve the
end-of-life care for patients and families in the ICU, improve resource allocation, and decrease length of stay in the unit.

Goal: The goal was to promote early identification of Goals-of-Care, Advance Directives, surrogate, code status, and a proactive family meeting in order to identify patient and family preference for the direction of care in a more timely manner for the adult patients in the ICU, and improve the utilization of the existing palliative care team.

Setting

Kaiser Permanente is a not-for-profit health insurer and hospital chain. Its business model integrates fixed-price health insurance, with treatment, at its own hospitals and clinics (“Another American Way”, 2010). The Kaiser Permanente Medical Care Program usually referred to as “Kaiser Permanente” (KP), is a group practice, prepayment plan. It provides comprehensive medical and hospital services to members in twelve operating regions including Hawaii. KP is the acknowledged prototype for the group practice “health maintenance organization” (HMO) concept, and each of its regions is a federally qualified HMO. It comprises three separate yet interdependent entities: Kaiser Foundation Health Plan (KFHP), Kaiser Foundation Hospitals (KFH) and Permanente Medical Group, in each region. These entities cooperate to organize, finance, and deliver medical care under mutually exclusive contracts built on common vision, joint decision making, and aligned incentives. KFHP and KFH are not-for-profit corporations that share a common board of directors. KFHP and its regional subsidiaries contract with individual, group, and public purchasers of coverage, to finance a full range of health care services for its members. KFH arranges for in-patient care, extended care and home health care
for health plan members in owned or contracted facilities (Kaiser Papers, 2013; McCarthy, Mueller & Wrenn, 2009).

An ICU is a consolidated area in a hospital where patients with acutely life-threatening illnesses or injuries receive around-the-clock specialized medical and nursing care, such as mechanical ventilation and invasive cardiac monitoring. Mortality rates of patients admitted to ICUs, average 10-20% in most US hospitals, and overall, approximately 200,000 patients die each year. Given this fact, the quality of care in ICUs is particularly important (Leapfrog, 2012).

This quality-improvement program was conducted in the 15 bed adult ICU, at Kaiser Permanente Medical Center, which is a 318 bed tertiary-care hospital in Honolulu, Hawaii. The ICU is a mixed unit that admits patients with medical, surgical, cardiac and/or neurologic instability, who have the need for close monitoring. The ICU admits approximately 850 patients per year, has an average length of stay of four to five days, and an average mortality rate of 12% (Kaiser ICU, 2013).

The unit at Kaiser is a closed ICU, run by a team of board-certified intensivists in following with the Leapfrog recommendations (Leapfrog, 2012). A closed unit as opposed to an open unit, is one in which patients are primarily cared for by the intensivist as the attending physician (Treggiari et al., 2007). The nursing leadership includes a nursing manager and a clinical coordinator. There is a charge nurse on each shift and the nurse-to-patient ratio is, for the most part, 1:2. The nursing staff is an established and seasoned group of individuals with greater than 50% of the staff having worked in the unit for more than 10 years, and with 20% having worked in the unit for more than 20 years.
Population & Sample

The target population was all patients admitted to, or transferred into the adult ICU. The accessible sample included patients who met daily screening/trigger criteria for a potential palliative care consultation. The ICU admits approximately 60 patients per month. All patients were over 18 years of age. On rare occasions, pediatric patients are placed in the adult unit to benefit from adult life-saving technologies, but these patients were not included in this project’s population. The majority of the patients were admitted with a variety of general MICU conditions, including cardiac and neurologic issues. The surgical patients were represented by all the surgical subspecialties, with the exception of the immediate post-operative open-heart patients. Chart reviews to evaluate changes in process and outcome measures, were performed on a three month sample, both prior to and post intervention.

Procedures

Following the Iowa Model of EBP, critique and evaluation of the literature showed that there was a sufficient research base to develop a practice guideline (Titler et al., 2001). To identify patients who might best benefit from a more timely palliative care consultation, the palliative care team, ICU nurses, and physicians developed screening/trigger criteria using a literature review and ICU clinical expertise to identify those with a high risk of dying. Final trigger criteria which were felt to represent the majority of high risk patients admitted to the ICU included: a) advanced cancer; b) chronic and severe cognitive dysfunction; c) consistency with or lack of Goals-of-Care; d) conflict with Goals-of-Care; e) multi-organ system failure and; f) ICU length of stay > 7 days. This screening criterion was used as a checklist. Although the literature suggests both an admission and daily assessment tool, each with primary and secondary
trigger criteria (Weissman & Meier, 2011), we decided on only one screening instrument to be used for both circumstances, until such need arose for separate selection tools. It was also felt that this would streamline the implementation.

The general model was, for the most part, a consultative one, utilizing the existing palliative care team. Incorporation of basic, palliative care principles into the daily ICU routine was also felt to be practicable and sustainable. It was necessary, though, to provide leniency in the time frame for the identification of the key components recommended by national guidelines.

After meeting the trigger criteria, the nursing staff was taught to direct patients/families to informational videos on Goals-of-Care that exist on the Kaiser Education on Demand Webinar (Volandes & Davis, 2005; Volandes et al., 2007; Volandes et al., 2013). The intent of the videos was to initiate a conversation regarding Goals-of-Care and designation of a surrogate, Advance Directives, and code status. This led to a social worker consultation for finalization of surrogate designation and Advance Directives, and then to the ICU physician for code status or resuscitation preferences between days one through three. The range of days was necessary due to the lack of a designated social worker on the weekends and nights. An ICU family meeting was proactively initiated by day three for those patients meeting the trigger criteria, and then, if further need was identified, a multidisciplinary palliative care family meeting proactively initiated by day five. This was felt to be the best use of existing resources maintaining the consultative premise, but at the same time fostering the integration of some of the palliative care concepts into our own ICU practice.

Once the guidelines and flow charts were formed, an application to the Kaiser IRB was submitted for approval. In-servicing of staff, which included a Pre/Post-Test to track general
knowledge gained, was commenced by the team leader. This instrument reviewed general knowledge regarding palliative care, and was formatted in such a way that it could be utilized in on-going clinical competency fairs that are held periodically for RN staff. The intent was to ensure sustainability over time.

The Iowa Model of EBP recommended trying the guideline out with a small number of patients (Titler et al, 2001). As a result, implementation was initiated with a pilot program for one week, and then re-evaluated with staff input for any necessary adjustments prior to full adoption. Surveys were offered to families who had either an ICU meeting or a palliative care consultation. They were distributed by either the clinical coordinator or team leader with a request for families to complete the questionnaire, seal it in the provided envelope addressed to a neutral place, and to submit it prior to leaving the ICU. Staff, who had taken care of the patient and family after a palliative care consultation, were also surveyed in the same manner.

**Marketing Plan**

Promotion of the project to the nursing staff was necessary prior to implementation of the program. Both mass-media and interpersonal channels with one-on-one meetings were used as the educational strategy. A large poster board depicting the project process was developed and erected in the lounge. Although this is an example of a passive strategy, it was intentionally made large enough for visual impact. The other mass-media strategy utilized was the monthly newsletter that is generated by our clinical coordinator and distributed via the email system (Rogers, 2003, p. 18). This was used as a reminder only, since all staff were in-serviced by the time it was released in early April.
The one-on-one meetings were chosen as the main method of education for staff. This method was felt to be the most effective at increasing compliance among nurses. A color handout for each employee was produced. This was utilized as a visual tool during the in-service (Briscoe & Aboud, 2012). The instruction was concise and delivered within a time frame of no more than five minutes. Major benefits of the program from the nurse’s perspective were emphasized.

Using active or performance-based techniques, a “hands on” experience with charting during each individual in-service was also utilized (Briscoe & Adoud, 2012). In the past, the nurses have demonstrated retention of EMR charting instructions if they were able to employ the methods instantly. A template and “smart phrase” were designed in the EMR to assist the RN staff with their charting. This template included all the key aspects of charting necessary for this palliative care process. The “smart phrase” created was “ICUPAL”. This “smart phrase” was incorporated into all of the ICU staff’s EMR access, and allowed the staff nurses to use the assigned template on an immediate basis. When the “smart phrase” was typed in the progress notes, the template then populated the area designated by the individual. This strategy was tailored to our particular ICU, and as it was perceived by the nurses to streamline the charting, it was received well (Dogherty et al., 2013). This active method was satisfactory, since it gave the opportunity to answer questions and point out immediate benefit.

“Cheat sheets” with the trigger criteria and process were laminated and attached to each computer. The charge-nurse board was changed to reflect the trigger criteria for each patient for tracking purposes. The physicians were also given their Smart Phrase along with their own laminated “cheat sheet” that was affixed to their computers.
The team leader and clinical coordinator maintained a constant daily presence in the unit for the first two months. This was necessary for staff reminders regarding the process to identify potential issues and to assist staff and physicians with any abnormal palliative care situations.

**Definitions**

The definitions of the variables are necessary to hone the process and outcome measurements. The optimal model for the ICU was felt to be one, which utilized the existing palliative care team, but also incorporated the basic palliative care principles into the daily care of patients. This included identification of Advance Directives, Goals-of-Care, surrogate, and code status by day three, once the patient had met trigger criteria. Documentation utilized the exact terminology, and each is defined in the following descriptions.

Goals-of-Care were defined as the patient’s/families overall wishes and expectations toward the direction of care. Advance Directives, were all directives, instructions, or even desires that a person may communicate in writing, orally, or in some other fashion concerning decisions about medical treatment, and health issues related to his or her body and life. Most commonly, Advance Directives are thought of, as written documents which provide health care providers with information about a patient’s desires concerning medical treatment, and which may, or may not, contain a designation of an agent (power of attorney for health care) to make health care decisions for the patient. A surrogate was a person who is not a guardian or health-care agent but has the authority to make decisions for the patient. This provision is used when an individual, who is no longer capable of making decision, lacks an Advance Directive and does not have a guardian (UH Elder Law Program, 2014). Code status was equivalent to the patient’s resuscitation status. This gave the practitioner guidance as to patient’s preference, for or against,
cardio-pulmonary resuscitation (CPR), in the event that the patient experienced a cardio-pulmonary arrest (UH Elder Law Program, 2014). This was determined on admission to the hospital, by the physician and patient, and was documented in the patient’s chart. It could be changed at any time and frequently updated, especially as a patient’s condition deteriorates.

The day of admission to the ICU, was considered Day 0 of ICU stay, with the following day designated as Day 1. Both the ICU days, and the days after the trigger was met, were tracked.

Traditionally, an ICU family meeting was thought of as an hour long meeting between the intensivist, RN and all the pertinent family members. These types of meetings were usually convened when the patient has been in the unit for some time, was deteriorating, and there were no further treatment options that were beneficial. It was noted, however, that this type of meeting, was not always productive. This was due, in part, to the large numbers of family members, and at times, the tendency for conflict and indecision. As a result, the proactive ICU family meeting was defined, not by amount of time spent with the family, but by the topics discussed. These included an update with the primary decision-maker and family members on: the patient’s current status, consistency/conflict with Goals-of-Care and Advance Directives, and code status. The documentation of the discussion included these salient points, along with outcomes of the discussion and plan of care.

The identification of need for a palliative care consultation resulted from a lack of progress after, or from an inability to resolve conflict during, the ICU family meeting. This was reflected in the charting by both the nurses and physicians.
Selection of Outcomes

**Process and outcome measures.** Selection of outcomes was the first step in “piloting the practice change” from the Iowa Model (Titler et al., 2001). Reporting outcomes and improving clinical practice on the basis of established standards of care are now recognized as essential aspects of critical care. Furthermore, improving palliative care in the ICU setting has become established as an important component of quality-improvement in the ICU (Mosenthal et al., 2012).

Metrics chosen for this project, consisted of both process and outcome measures from the framework established by the National Healthcare Quality Report (Nelson et al., 2006b). Key elements from the Care and Communication Bundle were also incorporated. These included: a) identification of the decision-maker; b) addressing the Advance Directive status; c) addressing cardiopulmonary resuscitation status; d) designating when to distribute information leaflets; and d) organizing family meetings (VHA, 2013).

Outcome measures followed recommendations from the CAPC IPAL-ICU project, and included evaluation of key operational, clinical, customer and financial data (Weissman, Meier & Spragens, 2008; Weissman & Meier, 2009; Weissman, Morrison & Meier, 2010). Since this was a quality-improvement project and not a controlled study, individual outcomes were not assessed. Instead outcome measures were evaluated as an aggregate of the patient population. The numerator for most measures was the numbers of patients receiving the care process and the denominator was the total patient number (Mularski et al., 2006).

**Evaluation.** This study looked at the following trends within a three month period both prior to, and after intervention: a) number of palliative care consultations; b) number of proactive...
ICU family meetings; c) identification of Goals-of-Care, Advance Directives, surrogate, code status, and distribution of informational handout to families from days one through three of meeting trigger criteria; d) identification of actual numbers of palliative care consultations that were necessary after the proactive ICU meeting; e) identification of changes in care after the ICU meeting; f) identification of changes in care after the palliative care meeting; and g) ICU length of stay. The collection of baseline data, which was the next step in the Iowa Model of EBP (Titler et al., 2001), commenced once a secure drive in the computer system was granted at Kaiser, and upon finalization of the Excel spreadsheet.

The family satisfaction surveys were distributed to the designated surrogate of all patients that met criteria, after the ICU family meeting that resulted in a change in treatment, or the palliative care family meeting by day five, or after an expected or unexpected death prior to day three. The RN staff were surveyed for the purpose of reviewing satisfaction with the standardized process, and the overall ratings were reported as a general score. These surveys were distributed within 24 hours of either the ICU family meeting that resulted in a change, or the palliative care family meeting by day five.

The aim of the evaluation process was to show trends in improvement in practice, and an increased number of palliative care consultations, thereby showing improved utilization of the palliative care team. Also included were enhanced nursing knowledge and understanding, regarding palliative care and end-of-life care, and improved family satisfaction.

The evaluation objectives were set at an expectation that 75% of the ICU RN staff were to be trained on the screening and documentation process via mass media, and one-on-one meetings within a three week period starting the middle of March. The team leader or clinical
coordinator made rounds three times a week with the charge nurse, to re-enforce palliative care principles and process with staff, for a month, then weekly thereafter. By the date of project implementation, 75% of RN staff were to be able to articulate 80% of the integration processes of palliative care in the ICU. Within one to two months of implementation, review of medical records were to show a 25%, then 50% increase in palliative care documentation. The data collected, along with the instruments utilized, and the analysis techniques are summarized in Figure 8.

Collection of Data

Sources of data. The process and outcome measures were obtained from the EMR. Process measures included: identification of palliative care need via admission and daily screening; identification of Goals-of-Care; and, the identification of surrogate, Advance Directives and code status by day three after meeting trigger criteria. They also included: the use of the Goals-of-Care video; changes in code status after the ICU, and/or palliative care family meeting; and changes in treatment (comfort care, extubation, lab draws, x-ray and pharmacy) after either the ICU, and/or a palliative care family meeting. The APACHE III scores which are used to predict hospital mortality risk for critically ill hospitalized patients, were obtained from a separate ICU data base.

Outcome measures involved operational data such as the patient age, gender, ethnicity, admitting diagnosis, comorbidities, date of hospital and ICU admission, and disposition. Clinical measures looked at numbers of intubated days. Financial metrics involved the length of stay in the ICU and the hospital, and customer data were obtained from the family satisfaction surveys.
**Figure 8**

Data Collection Summary

<table>
<thead>
<tr>
<th>Variables</th>
<th>Instruments</th>
<th>Data Collection Point</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Pre-education</td>
<td>Investigator designed Pre/Post Test</td>
<td>One week prior to educational session</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td>Knowledge Post-education</td>
<td>Investigator designed Pre/Post Test</td>
<td>Immediately post educational session, 3 months post implementation</td>
<td>Descriptive Statistics</td>
</tr>
<tr>
<td>Barriers to Implementation</td>
<td>Interview, Check Lists, Process Evaluation Check List</td>
<td>Daily &amp; monthly post-implementation</td>
<td>Identify Themes</td>
</tr>
<tr>
<td>Compliance with Practice Change (ID Goals-of-Care, Advance Directives, surrogate, codes status, printed material, changes in treatment post ICU/PAL meetings)</td>
<td>Chart Audits</td>
<td>Weekly post implementation for 1 month, then every month for 3 months, then quarterly</td>
<td>Descriptive Statistics, Trend Analysis</td>
</tr>
<tr>
<td><strong>Outcome Measures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational Data</td>
<td>Chart Audits</td>
<td>3 months prior to &amp; post implementation</td>
<td>Descriptive Statistics &amp; Trend Analysis</td>
</tr>
<tr>
<td>Clinical Data</td>
<td>Chart Audits, APACHE data</td>
<td>3 months prior to &amp; post implementation</td>
<td>Descriptive Statistics &amp; Trend Analysis</td>
</tr>
<tr>
<td>Numbers of PAL consultations, length of ICU stay, etc.</td>
<td>Chart Audits, APACHE data</td>
<td>3 months prior to &amp; post implementation</td>
<td>Descriptive Statistics &amp; Trend Analysis</td>
</tr>
<tr>
<td>Patient/Family Satisfaction</td>
<td>FS-ICU 24</td>
<td>After ICU family meeting, or PAL meeting</td>
<td>Descriptive Statistics &amp; Trend Analysis</td>
</tr>
<tr>
<td>Nursing Satisfaction</td>
<td>Investigator designed Nurses Survey</td>
<td>Corresponding RN who cared for family being surveyed</td>
<td>Descriptive Statistics &amp; Trend Analysis</td>
</tr>
</tbody>
</table>

A three month sample of data was obtained to look at pre- and post-intervention outcomes. This was reported as an aggregate data set with the intent to show trends before and after intervention.
**Instruments.** The charge nurse board was altered to provide a checklist for daily tracking of patients who met trigger criteria. A Pre/Post-Test was developed with the intention of evaluating staff knowledge of palliative care, and end-of-life care. The basic palliative care principles were encompassed in the education for staff. Also included, were the rationale, and use of the existing evidence-based Goals-of-Care videos that are provided on the Kaiser Education on Demand Webinar. The test was designed with an equal division of questions, to evaluate both knowledge and opinion. The tool was administered to all staff prior to the onset of in-servicing, and then again before official implementation. The test was re-administered again after three months of implementation. The test was informal and designed to be a part of the ongoing clinical competency fairs that are held periodically for staff. In-services were provided to staff on the identification of Goals-of-Care, and palliative care principles. The process involved in initiating a palliative care consultation, and expectations toward the documentation of discussions in the electronic medical record, were also included. A copy of the Pre/Post-Test is included in Appendix B.

A Process Evaluation Checklist was also developed for the purpose of reinforcing the fundamental project process. Unlike the Pre/Post-Test, this tool pertained to only the essential steps, and the staff were required to articulate these aspects of the program. This was used at the end of every month until at least 75% of the RN staff reached 80%. A copy of this tool is included in Appendix C.

It was felt that feedback from the families was necessary, and, accordingly, a pre-existing survey was selected for family satisfaction measures. The Family Satisfaction in the Intensive Care Unit© is a tool that had been previously validated in the literature, and was chosen for this
project (Heyland & Tranmer, 2001). This survey was utilized on an anonymous basis in an attempt to gauge perceptions of the environment and care. A key domain of quality of care is satisfaction with care. Because desirable health status outcomes may not be attained after critical illness, and because mortality rates in tertiary referral ICUs may approach 15-20%, satisfaction with care is important not only to patients, but also to their families. Furthermore, given that the majority of critically-ill patients (especially those at high risk for poor outcomes), are unable to participate in decision making about treatments, the family's perspective is central to understanding and measuring satisfaction with care in the ICU (CARENET, 2010).

The Family Satisfaction in the Intensive Care Unit© (FS-ICU 24) questionnaire was reduced from its original 34 items, and its assessment of overall satisfaction with care was shown to be reliable (correlation coefficient = 0.85). It was developed and validated by Heyland and colleagues, and designed to measure family satisfaction with ICU care (Heyland & Tranmer, 2001). It is utilized for both internal quality-improvement and quality of care research. With its validated scoring method, it provides a total satisfaction score, as well as a subscale rating for satisfaction with care, and satisfaction with decision making. The total and subscale scores are calculated by averaging available items, and the scores are linearly transformed to range from 0 to 100, and oriented so that higher values indicate increased satisfaction (Curtis et al., 2008; Schwarzkopf et al., 2013). A copy of the FS-ICU 24 is included in Appendix D.

An informal RN Survey was designed with questions that are representative of the specific subscales from the 5 Perceived Attributes of the Diffusion of Innovations Model. They include: a) relative advantage; b) compatibility; c) complexity/simplicity; d) trialability; and e) observability (Atkinson, 2007; Rogers, 2003, p. 15). This survey was used to gauge perceptions,
and to review satisfaction of the staff with the implementation of palliative care standards in the ICU, and the project’s overall process. This was for general knowledge and educational purposes only, and was not meant to be a validated or comparative type of survey.

**Development of an Evidence-Based Practice Guideline**

Developing a written EBP guideline was the subsequent step in the Iowa Model (Titler et al., 2001). Practice guidelines are systematically developed statements, to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. Practice guidelines are evidence-based if they undertake a review of the literature, and link their concluding recommendations to the evidentiary base identified through the literature search (Brouwers et al., 2010). A systematic approach was used, to ensure that the guidelines for this project were based on the best available evidence, and that they were consistent with the current focus on patient-family centered care. The process utilized the Appraisal of Guidelines for Research and Evaluation II (AGREE II) instrument as the foundational, development framework for developing the new practice guideline. The AGREE II is a valid and reliable tool that can be applied to any practice guideline, in any disease area, and can be used by health care providers, guideline developers, researchers, decision/policy makers, and educators (AGREE, 2009). An evidence-based practice guideline was developed for the purposes of this project, and describes the process in detail. Final guidelines are included in Appendix E.

**Practice Change**

In keeping with the Iowa Model of EBP, once the guidelines were developed and all staff had been trained, a one-week trial period was initiated as part of implementing the practice change. The process outcomes and any large issues were evaluated toward the end of the trial,
but they did not result in the need for any major modifications to the guidelines. Full implementation and adoption of the practice change was therefore initiated.

Every patient that was admitted and/or transferred into the ICU was screened daily, utilizing the pre-determined trigger criteria. Once a patient met the criteria, a social-worker consult was generated, and the charge nurse and physician were notified. The staff was to direct families to the Goals-of-Care videos, on the Education on Demand Kaiser Webinar, and to document any questions or discussions in the EMR. The social worker was responsible for completion of the Advance Directives, and surrogate if necessary. The physician was responsible for addressing code status and the patient’s Goals-of-Care. Their documentation was to reflect the proactive ICU family meeting that was to be performed by day three of meeting the trigger criteria. Should the need for a palliative care consultation be identified within this time frame, a formal request for consultation was generated by the intensivist, and the staff was to offer the palliative care brochure to the family. The nursing staff was to participate in the family meetings, as allowed by staffing and work load.

**Ethical Considerations**

This project was designed as a quality-improvement program and not as a controlled trial. As such, there were no plans to randomize subjects to different treatments, nor was personal identifiable information collected. Standard, evidence-based practices were implemented and data reported as an aggregate of the population.

This project utilized the primary ethical principles that govern research with human subjects: autonomy, non-maleficence, beneficence, and justice (Callahan & Hobbs, 2010). There was no additional risk beyond standard practice, and since this was an improvement of practice,
there was only benefit to both patients/families and staff. All patients admitted and meeting trigger criteria were eligible for a palliative care consultation and care was not withheld when a need was identified.

The author/team leader had taken the University of Hawaii required Collaborative Institutional Training Initiative (CITI) course in Human Subjects Protection. This proposal was also reviewed by a committee consisting of University faculty, along with clinical experts familiar with clinical research, to ensure that there was adequate human subjects’ protection.

**Institutional Review Board**

A full application was submitted to the Institutional Review Board (IRB) to ensure completeness of the process in implementing this project. As the implementation of this program would only provide for more timely intervention, without change of routine practice, and as the study only involved collection of retrospective data without compromise of patient confidentiality, the requirement for informed consent was waived by the Kaiser IRB. It was also necessary to notify the Kaiser Quality-improvement Board of pending plans, and approval to proceed with implementation was received.

**Resource Utilization**

This project did not require a large amount of resource allocation. As this was a practice-improvement project, we were essentially performing the existing practice in a timelier manner. Most of the work revolved around in-servicing RN staff, and then the time and effort involved in overseeing the process. This was a joint effort between the team leader and the clinical coordinator. The data collection was accomplished by the team leader with minor assistance from the clinical coordinator.
Strategic Plan and Time Line

The Kaiser IRB waived their requirement for consent, and a number of processes were completed as of April 1, 2014. These included modifications to guidelines, notification of stakeholders of finalization plans, and finalization of the data spread-sheet. It also included the initiation of the pre-intervention data collection of a three month sample of patients, and the staff pre-test, in-service and post-education testing. A pilot program was used to indicate the feasibility and effectiveness of using the guidelines in the ICU, and to validate that the outcome measures could be achieved (Titler et al., 2001). This was initiated the first week of April, and subsequent adjustments were made as necessary. Full implementation then commenced as of the second week in April. The post-interventional chart review was initiated one month after full implementation, in May 2014. The tentative plan was to complete data collection by August and analysis of that data by September. It was necessary to report the results of this data to the Kaiser Quality-Improvement Committee by October. The Kaiser Permanente Physician’s Group had also requested a poster presentation for their Symposium on November 11, 2014. Completion of the paper for submission to the University of Hawaii Graduate Committee’s was planned for November of 2014, and the oral defense thereafter. This allowed time to re-format the paper for publication and dissemination. These plans are outlined in Figure 9 for visual ease.

Summary

With sufficient evidence to guide practice, the selection of outcomes, reviewing baseline data and the generation of guidelines, were the next steps in the practice-change process set forth by the Iowa Model of EBP. Staff education and testing were initiated as part of the marketing plan. Incorporation of the basic palliative care principles into the ICUs daily flow, and the
process to initiate a palliative care consultation, were then implemented with a one week pilot program. Minor adjustments were made as a result of process feedback. The project was then fully executed the following week.

*Figure 9*

Time Line

<table>
<thead>
<tr>
<th>TASK</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M A</td>
<td>M J</td>
</tr>
<tr>
<td>Successful Proposal Defense</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare &amp; Submit IRB Applications prn</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brief Key Leaders &amp; Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop Marketing Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare Instruments for Distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educate Staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Progress Review</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop Database</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement Practice Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collect Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enter Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpret Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KP QI Committee Data Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPMG Symposium Presentation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare &amp; Submit Dissemination Products</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As a relatively new specialty, palliative medicine lacks high quality research from which to draw conclusions (Weissman et al., 2010). To provide health services that produce outcomes valued by patients, families and society, it is necessary to identify specific targets for measuring and enhancing care. Measurement of quality care is enhanced when specific processes of care are clearly linked to improved outcomes, because clinicians and healthcare systems can target these processes as an efficient way to improve quality of care. However, data supporting these links between specific palliative aspects of critical care and outcomes are limited, and measurement remains challenging (Mularski et al., 2006; Weissman et al., 2010). This project hopefully added ongoing information toward the implementation of a new palliative care program, and utilization of an existing palliative care team in a more timely fashion within the ICU.
Chapter 4. Results

Introduction

Implementation of a new palliative care program involved the integration of basic principles of palliative care along with a process to identify appropriate patients for a palliative care (PAL) consultation, into the ICU at Kaiser Permanente Hawaii. This included the early identification of the patient’s Goals-of-Care, surrogate, advanced directives, and code or resuscitation status. This resulted in a proactive family meeting, which then led to the potential for a subsequent proactive, palliative care consultation. Following the Iowa Model of EBP, the project was implemented with a pilot program for one week. A change in practice was gradually adopted over the following months. The monitoring and analysis of the process and outcome data encompassed the next steps. These consisted of the evaluation of the clinical, customer and financial data, which included the patient, staff, environmental, and fiscal outcomes (Titler et al, 2001). This chapter describes these further steps along with the evolution of the project, together with a description of the sample, and the outcomes and analysis of both the pre- and post-interventional data.

Description of the Sample

Patient sample. Three months of pre-interventional patient data were obtained by chart review, covering a period from November 1, 2013 through January 30, 2014. This data set represented a total of 194 patients. Although this is an adult ICU, there were times in which pediatric (less than 18 years old) patients were admitted to the unit. These patients were not included within the sample due to their age. The project commenced on April 1, 2014, and the post-interventional data were collected from April 1, 2014 through June 30, 2014. This data set
consisted of 198 patients. Due to the hospital course of several patients’ illnesses, some of them were necessarily re-admitted for treatment to the ICU within the same month. When this occurred, for the purposes of this study, they were only counted once and their resultant ICU days were totaled together. The demographics for both sample sets are listed in Table 2.

Table 2

*Description of Patient Sample*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Intervention (N=194)</th>
<th>Post-Intervention (N=198)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Groups</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-30</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>31-40</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>41-50</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>51-60</td>
<td>42</td>
<td>34</td>
</tr>
<tr>
<td>61-70</td>
<td>46</td>
<td>57</td>
</tr>
<tr>
<td>71-80</td>
<td>39</td>
<td>50</td>
</tr>
<tr>
<td>81-90</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>&gt; 91</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Gender</td>
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<td></td>
</tr>
<tr>
<td>Male</td>
<td>107</td>
<td>120</td>
</tr>
<tr>
<td>Female</td>
<td>87</td>
<td>78</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>72</td>
<td>78</td>
</tr>
<tr>
<td>Caucasian</td>
<td>71</td>
<td>62</td>
</tr>
<tr>
<td>Polynesian</td>
<td>46</td>
<td>51</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Admitting Diagnosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td>Cerebral Vascular Accident</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Sepsis</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Respiratory Failure</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>Surgery</td>
<td>26%</td>
<td>27%</td>
</tr>
<tr>
<td>Other</td>
<td>37%</td>
<td>32%</td>
</tr>
<tr>
<td>Co-morbidities-average number</td>
<td>4.47</td>
<td>4</td>
</tr>
</tbody>
</table>
The two population groups were similar in the majority of their characteristics. Most of the patients were within the 61-70 age-group range, with greater numbers of males. The three top ethnic groups were identified in the table since they comprised the vast majority of the population. Multiple admitting diagnoses for an individual were included in the data. The top five admitting diagnoses were reported, with all general surgery grouped together, and all other medical and neurological conditions placed under “other”. The co-morbidities, which were defined as the simultaneous presence of two or more chronic diseases or conditions, were reported as an average of the total number of co-morbidities per patient (Valderas et al., 2009).

**Nurses sample.** The RN staff totaled 52 at the beginning of the project and was split between 26 regular day-shift and 21 night-shift members. They also included one call-in staff member for nights only, and four call-in day staff who worked from two to eight days during a month’s period. The total number did not include the team leader, the clinical coordinator or the unit supervisor. One staff member resigned during the third month of implementation and was lost to the last month of evaluation. One member of the staff was also on leave during the last month of evaluation, and several of the call-in staff were not scheduled to work for an extended period of time.

**Evolution of Project**

The team leader met with the Quality-Improvement Committee in late February. This was meant to be a preliminary inquiry followed by a full committee hearing for approval, but since this was not required in order to proceed with initiation of the project, a full report was delayed until such time as a final account could be made on all the data collected.
**Staff education.** The education of staff, and the initiation of the pilot program, commenced after The Joint Commission (TJC) had completed their accreditation process with the palliative care team. This was to ensure that there was no contamination of the TJC process. However, this created some confusion with the staff, since the procedure taught to them in preparation for TJC was a hospital-wide effort, and not targeted to one particular unit. It was then necessary for the ICU staff to be re-educated on the present project’s process, which was designed specifically for the ICU.

In keeping with the Iowa Model of EBP, the project was implemented after an initial one-week pilot. This commenced after two weeks of in-servicing both day and night RN staff. A letter was sent to all the ICU physicians updating them on the project status, and with a reminder of the timeline. Other admitting services such as Surgery were also notified of the pending project. The team leader and the clinical coordinator were available for the staff seven days a week for the first month. This was necessary, partly as a reminder and support for staff, but also to deal with any palliative care issues and/or situations that tended to arise.

The pre-implementation data collection commenced immediately after the IRB waved the need for consent, and upon receiving approval from the Quality-Improvement Committee at Kaiser Permanente in Hawaii. The post-implementation data collection was initiated once the pre-implementation data collection and the first month of the project had been completed. The data collection process was time consuming since it was necessary to review each progress note in every patient’s chart. However the time spent in the ICU allowed for the physical presence of the team leader to assist staff with the questions that arose regarding the process. The project was
officially concluded on June 30, 2014 and the completion of the final Process Evaluation Checklist and the three month Pre/Post Test administration, were accomplished at that time.

The FS-ICU 24 and RN surveys were offered either by the team leader or the clinical coordinator. A letter explaining the FS-ICU 24 was attached to each survey, and language with respect to the verbal request for family participation, had been developed by the team leader and clinical coordinator prior to the initiation of the surveys. The majority of the surveys were offered to families by the team leader within 24 hours after either the family, or palliative care meeting. This allowed for continuity and the timing of the requests. However, in three instances, the dialogue was also taught to several nurses who were comfortable with approaching the families to hand out the forms. Once completed, the families were instructed to place the surveys in a pre-addressed envelope that was provided, and they were shown where to drop them off. The surveys were then sent via the inter-office mail system to the main Hospital Supervisor’s mailbox within the Hospital Operations Center, collected, and then handed back to the team leader on a weekly basis.

The corresponding RN survey was administered to each of the staff by either the team leader or the clinical coordinator. The nurses were then instructed to return their completed surveys to the clinical coordinator.

Data Analysis

This project was an analysis of quality-improvement data. Quality-improvement data are designed to improve care and knowledge, and provide information for on-going modification of a project and process over time. This is necessary for both clinical and financial significance. Therefore, experimental design and randomization were not used. Frequencies, means, and
standard deviations were used to examine the distribution of measures. The abbreviations used included, \( M = \) mean, \( N = \) number, \( p = \) probability, and \( SE = \) standard error. An independent T-test was used to compare mean scores of the samples that comprised different groups, and a paired T-test was used to compare mean scores of the samples that included scores from the same groups. Terminology, as defined by Field (2009), was used for the reporting of the T-test results. The equation, \( t(df) = (t-value), (p \text{ value}), (r \text{ value}), \) where, \( (df) = \) degrees of freedom, \( (t-value) = \) T-test result, \( (p \text{ value}) = \) probability, and \( (r \text{ value}) = \) effect size, were utilized (Field, 2009). A Pearson’s chi-square test was utilized for comparisons of various frequencies. The chi-square results were reported as the value of the test statistic with its associated degrees of freedom and the significant value. The test statistic is denoted by \( x^2 \) (Field, 2009). All descriptive statistics were calculated using Excel 2013, along with the Statistical Package for the Social Sciences (SPSS) for PC (version 22; SPSS Inc., Chicago, Illinois; 2013). The independent, paired T-tests and chi-square tests were calculated using Excel 2013.

**Findings**

The metrics and benchmarks were pre-determined and approved by the Quality-Improvement Committee prior to the implementation of the project. Outcome measures involved operational data such as the patient age, gender, ethnicity, admitting diagnosis, comorbidities, and disposition. Process measures looked at: a) identification of numbers of patients meeting the trigger criteria, b) identification of surrogate by day three of meeting the trigger criteria, c) identification of Advance Directives by day three of meeting the trigger criteria, d) identification of code status by day three of meeting the trigger criteria, e) identification of Goals-of-Care by day three of meeting the trigger criteria, f) numbers of ICU family meetings by day three of
meeting the trigger criteria, g) numbers of palliative care consults, h) the use of the Goals-of-Care video, i) changes in code status after either the ICU, or the palliative care family meeting, or both, and j) changes in treatment (comfort care and/or extubation) after either the ICU, or a palliative care family meeting, or both. Clinical measures looked at the numbers of intubated days. Financial metrics involved the length of stay in the ICU and the hospital, and customer data were obtained from both family satisfaction and nursing surveys.

These pre- and post-intervention samples of data were designed to measure the process progression over time. This was reported as an aggregate data set with the intent to show trends before and after intervention. These results, that included all of the previously mentioned outcome measures, are reported in Table 3. The outcome measures were reported as a total numerical value for the three months, with the exception of the length of stay both in the ICU and hospital, and numbers of intubated days, which were computed as means.

The numbers of individuals and the numbers of patients who met the trigger criteria, in both of the samples, were approximately the same. Using an independent T-test there was a slight decrease in the mean length of ICU days from the pre-interventional sample ($M = 5.76, SE = .97$) to the post-interventional sample ($M = 4.92, SE = .50$), but this difference was not significant $t(289) = 0.78, p > .05$. There was also a decrease in the mean length of hospital days from the pre-interventional sample ($M = 17.43, SE = 1.99$) to the post-interventional sample ($M = 12.88, SE = 1.26$). This difference was significant $t(327) = 1.93, p = .05$, but it represented a small-sized effect $r = .11$. There was a decrease in the mean number of intubated days from the pre-interventional sample ($M = 8.88, SE = 2.60$) to the post-interventional sample ($M = 4.82, SE = .
but without significance $t(86) = 1.49, \ p > .05$. The APACHE III severity scores between the pre- and post-interventional sample were, for the most part, unchanged.

Table 3

Process, Clinical & Financial Measures. Pre- and Post-Intervention Results

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Intervention (N=194)</th>
<th>Post-Intervention (N=198)</th>
<th>$P$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Length of ICU Stay (days)</td>
<td>5.76</td>
<td>4.92</td>
<td>.44</td>
</tr>
<tr>
<td>Mean Length of Hospital Stay (days)</td>
<td>17.42</td>
<td>12.88</td>
<td>.05</td>
</tr>
<tr>
<td>Mean # Intubated Days</td>
<td>8.88</td>
<td>4.82</td>
<td>.14</td>
</tr>
<tr>
<td>Mean APACHE III Score</td>
<td>56.54</td>
<td>57.08</td>
<td>.86</td>
</tr>
<tr>
<td>Disposition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td>130</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td>31</td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>Hospice</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>27</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td># Patients Met Trigger</td>
<td>41</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td># Patients-ID Goals-of-Care *</td>
<td>10</td>
<td>33</td>
<td>.01</td>
</tr>
<tr>
<td># Patients-ID Advance Directives *</td>
<td>39</td>
<td>43</td>
<td>.90</td>
</tr>
<tr>
<td># Patients-ID Surrogate *</td>
<td>23</td>
<td>20</td>
<td>.46</td>
</tr>
<tr>
<td># Patients-ID Code Status *</td>
<td>16</td>
<td>37</td>
<td>.05</td>
</tr>
<tr>
<td># Patients-Video Utilized *</td>
<td>2</td>
<td>2</td>
<td>.90</td>
</tr>
<tr>
<td># Patients-PAL Brochure Given</td>
<td>0</td>
<td>10</td>
<td>.005</td>
</tr>
</tbody>
</table>

Definitions of abbreviations: ID-identified; $N$ = number of...; $p$ = probability; * by day 3

Despite similar numbers of patients between the two populations that met the trigger criteria, the numbers of patients in which the Goals-of-Care were identified by day three, increased significantly, $X^2(1) = 6.62, \ p = .01$. Patients in which Advance Directives were
identified by day three of meeting the trigger criteria, decreased slightly from 95-91%. Those in which a surrogate was identified by day three of meeting the trigger, also decreased from 56-43%. Neither was significant. The numbers of patients who had their code status identified by day three of meeting the trigger criteria, increased significantly, $x^2(1) = 3.70, p = .05$. The use of the video remained unchanged, but the use of the PAL brochure increased from zero to 21%, reaching significance, $x^2(1) = 8.01, p < .01$.

The pre- and post-intervention data related to the proactive ICU meeting, for those patients who made trigger criteria, are represented in Table 4. This included the patients who did, or did not, have an ICU meeting by day three of meeting the trigger criteria, and then any changes in their code status or treatment after the ICU meeting.

Table 4

**ICU Family Meeting Outcomes. Pre- and Post-Intervention**

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Intervention (N=194)</th>
<th>Post-Intervention (N=198)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Patients-Met Trigger</td>
<td>41</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>ICU Family Meeting by Day 3</td>
<td>12</td>
<td>37</td>
<td>.01</td>
</tr>
<tr>
<td>ICU Family Meeting after Day 3</td>
<td>5</td>
<td>5</td>
<td>.84</td>
</tr>
<tr>
<td>Missed ICU Family Meetings</td>
<td>24</td>
<td>5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>ID Changes in Code Status after ICU Meeting</td>
<td>10</td>
<td>26</td>
<td>.05</td>
</tr>
<tr>
<td>ID Changes in Care after ICU Meeting</td>
<td>4</td>
<td>11</td>
<td>.15</td>
</tr>
</tbody>
</table>

The numbers of patients in the post-intervention sample who met the trigger criteria remained approximately the same as those in the pre-intervention sample. Despite this, the trend showed an increase in the numbers of proactive ICU meetings by day three, from 29% in the pre-
interventional sample, to 79% in the post-interventional sample $x^2(1) = 6.48, p = .01$. There was also a reciprocal decrease in the numbers of missed meetings from 59% in the pre-interventional sample to 11% in the post-interventional sample, $x^2(1) = 11.56, p < .01$. The numbers of changes in code status after the ICU meetings, increased from 24% in the pre-interventional sample to 55% in the post-interventional sample, $x^2(1) = 3.73, p = .05$. This rise was also seen in the numbers of changes in treatment after the ICU meetings, which increased from 10% in the pre-interventional sample to 23% in the post-interventional sample, but not significantly.

The pre- and post-intervention data related to the proactive palliative care meeting for those patients who made trigger criteria, are represented in Table 5. This included total numbers of PAL consultations for those patients who made the trigger criteria, and PAL consultations performed by day five after meeting the trigger criteria. Those patients that met the trigger criteria and had an ICU family meeting without changes in code status or care, became eligible

Table 5

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Interventional (N=194)</th>
<th>Post-Interventional (N=198)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Patients-Met Trigger</td>
<td>41</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Total PAL Consultations</td>
<td>8</td>
<td>14</td>
<td>.39</td>
</tr>
<tr>
<td>PAL Consultations by Day 5</td>
<td>2</td>
<td>6</td>
<td>.24</td>
</tr>
<tr>
<td>PAL Consults Needed after ICU Meeting</td>
<td>7</td>
<td>15</td>
<td>.21</td>
</tr>
<tr>
<td>Changes in Code Status after PAL Meeting</td>
<td>2</td>
<td>3</td>
<td>.78</td>
</tr>
<tr>
<td>Changes in Care after PAL Meeting</td>
<td>1</td>
<td>3</td>
<td>.40</td>
</tr>
</tbody>
</table>
for a palliative consultation, and were reported as PAL consults needed after the ICU meeting. Changes in codes status and treatment after any PAL consultations were also reported. The trend showed an increase in the numbers of PAL meetings, which rose slightly from 20% in the pre-interventional sample to 30% in the post-interventional sample. There were also small increases in the rest of the measured outcomes.

**Pre/Post Test.** In order to reach the evaluation objective that 75% of the ICU RN staff were to be trained and able to articulate 80% of the integration processes of palliative care in the ICU by the date of implementation, the Pre/Post Test was administered both prior to, and after staff education. 83% of RN, 100% of ward clerks and a small percentage of respiratory therapy (RT) staff took the pre-test prior to implementation of the education phase of the project. The post-education test was administered to 100% of RN, 100% ward clerks and a small percentage of RT staff, immediately after the education phase, and then again at three months after implementation, with 82% of RN staff. At that juncture, this instrument was the only one designed to capture the evaluation expectation. The pre-implementation results showed 40% of the mixed staff tested scored 80% or greater. Post-implementation results more than doubled to 84% of a mixed staff tested, scoring 80% or greater. The final evaluation at three months was administered to RN staff only. This evaluation resulted in 98% of the RN staff scoring 80% or greater.

The Pre/Post Test consisted of 17 questions. It was a combination of questions that were designed to examine both the knowledge and opinion of the palliative care process. All inquiries were limited to “yes, no” answers for both types of questions. The test contained nine Knowledge Questions, four Current Practice, and four Opinion Questions. The total percentages
assigned to each test were representative of all 17 questions, including the opinion-based questions that would have been deemed to have been answered correctly. The three month post-intervention sample reflected the highest percentage of those who scored over 80%. This increase in scores occurred despite the change in the testing of a mixed staff to that of only RNs. This increased trend is shown below in Table 6. The results from the various types of questions were also reported separately with evident increases in trends over time. Table 7 shows both the percentage and the mean scores from the Knowledge Questions for all of the interventional periods. The resultant scores showed an increased trend as the project progressed. This increase was maintained three months post intervention, as may be seen in Figure 10.

Table 6

*Pre/Post Test Percentage of Staff Who Scored > 80%*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Education (N=60)</th>
<th>Post-Education (N=63)</th>
<th>3 Months Post Intervention (N=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of staff with scores &gt; 80%</td>
<td>40%</td>
<td>84%</td>
<td>98%</td>
</tr>
</tbody>
</table>

Table 7

*Pre/Post Test Knowledge Questions. Final Percentage & Mean Scores*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-education (N=60)</th>
<th>Post-education (N=63)</th>
<th>3 Months Post Intervention (N=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Correct</td>
<td>17%</td>
<td>67%</td>
<td>56%</td>
</tr>
<tr>
<td>Mean</td>
<td>7.30</td>
<td>8.48</td>
<td>8.40</td>
</tr>
</tbody>
</table>
Using an independent T-test, there appears to be a difference between the pre-educational data ($M = 7.29, SE = .17$) and the post-educational data ($M = 8.48, SE = .11$). This difference was significant $t(98) = -5.88, p < .05, r = 0.51$. The decrease in mean scores between the post-educational data ($M = 8.48, SE = .11$), and the three month educational data ($M = 8.39, SE = .10$) showed no significance $t(98) = .63, p > .05$. These results are shown in Table 8.

Table 8

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-education ($N=60$)</th>
<th>Post-education ($N=63$)</th>
<th>3 Months Post Intervention ($N=42$)</th>
<th>$P$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Score</td>
<td>7.29</td>
<td>8.48</td>
<td>8.39</td>
<td>&lt;.0005</td>
</tr>
<tr>
<td>Mean Score</td>
<td>8.48</td>
<td>8.39</td>
<td></td>
<td>.53</td>
</tr>
</tbody>
</table>
Table 9 shows the numbers of nurses who answered “yes”, “no”, or “don’t know” for both the Current Practice and Opinion Questions. The first four Current Practice questions shown in Figure 11 showed an increased trend (in percent) toward the adoption of palliative care tools and concepts in daily practice. This included the attitude change toward providing palliative care to all patients in the ICU, not just the terminal patients. This was depicted by the third current Table 9

Pre/Post Test Current Practice/Opinion Questions. Results

<table>
<thead>
<tr>
<th>Current Practice Questions</th>
<th>Pre-Test (N=60)</th>
<th>Post-Education (N=63)</th>
<th>3 Months Post Intervention (N=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I currently screen my pts for palliative care needs</td>
<td>Yes 31</td>
<td>No 24</td>
<td>d/k 5</td>
</tr>
<tr>
<td>I currently provide palliative care to all my pts</td>
<td>Yes 25</td>
<td>No 31</td>
<td>d/k 4</td>
</tr>
<tr>
<td>I currently provide palliative care to my terminal pts only</td>
<td>Yes 7</td>
<td>No 50</td>
<td>d/k 3</td>
</tr>
<tr>
<td>I use the Goals-of-Care videos on the Kaiser webinars</td>
<td>Yes 18</td>
<td>No 36</td>
<td>d/k 6</td>
</tr>
<tr>
<td>Opinion Questions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RNs should discuss end-of-life issues with pts/families</td>
<td>Yes 49</td>
<td>No 7</td>
<td>d/k 4</td>
</tr>
<tr>
<td>RNs should be involved in a multi-disciplinary ICU/palliative care meeting</td>
<td>Yes 58</td>
<td>No 1</td>
<td>d/k 1</td>
</tr>
<tr>
<td>RNs should address ADs, code status and surrogate designation</td>
<td>Yes 39</td>
<td>No 18</td>
<td>d/k 3</td>
</tr>
<tr>
<td>RNs should chart on pt and family Goals-of-Care</td>
<td>Yes 58</td>
<td>No 1</td>
<td>d/k 1</td>
</tr>
</tbody>
</table>

Definition of Abbreviations: AD-Advance Directive; Pt(s)-patient(s); d/k-“don’t know”
practice question of, “I currently provide palliative care to my terminal patients only”. With the exception of the question, “RN\(s\) should address ADs, code status and surrogate”, the results from the Opinion Questions, represented in Figure 12, showed small increased trends in the general opinion that nurses should be more involved in palliative care issues with patients and families.

**Process Evaluation Checklist.** The Process Evaluation Checklist consisted of 17 possible answers. It was administered to the RN staff at the end of each of the intervention months. 14 correct answers were equal to 82%, and this was set as the benchmark score. 83% of RN staff were tested at the end of the first month, with a resultant 7% of tested staff meeting the benchmark. 87% of staff were tested at the end of the second month; 20% of those tested met the set goal. At the end of the third month 82% of RN staff were tested, with resultant 76% of those tested reaching the target goal. These results along with the overall mean scores are shown in
Table 10. The mean score trend increased throughout the interventional phase and is represented in Figure 13.

Figure 12

Pre/Post Test Opinion Questions. Response Trend

Table 10

Process Evaluation Checklist. Interventional Months Comparison

| Measure                                      | April  
<table>
<thead>
<tr>
<th></th>
<th>(N=43)</th>
<th>May</th>
<th>(N=45)</th>
<th>June</th>
<th>(N=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Staff Reached Goal</td>
<td>7%</td>
<td>20%</td>
<td>76%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Score</td>
<td>7.79</td>
<td>10.60</td>
<td>14.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There was a distinct increased trend in the understanding of the process through the three month period. A paired T-test was performed between April and May, and then again between
May and June, on only the nurses who participated in all three months. Table 11 shows a significant difference between the mean scores for April ($M = 7.58, SE = 0.62$) and May ($M = 11.45, SE = 0.41$), $t(32) = -4.66, p < .05, r = .64$. There was also a significant difference between the mean scores for May ($M = 11.45, SE = 0.14$) and June ($M = 14.64, SE = 0.30$), $t(32) = -6.40, p < .05, r = .75$.

Figure 13

Process Evaluation Checklist. Mean Scores ($\pm SE$)

![Process Evaluation Checklist. Mean Scores](chart.png)

Table 11

<table>
<thead>
<tr>
<th>Measure</th>
<th>April ($N=33$)</th>
<th>May ($N=33$)</th>
<th>June ($N=33$)</th>
<th>$P$ Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Score</td>
<td>7.58</td>
<td>11.45</td>
<td>14.64</td>
<td>$&lt;.0002$</td>
</tr>
<tr>
<td>Mean Score</td>
<td>11.45</td>
<td>14.64</td>
<td>$&lt;.0001$</td>
<td></td>
</tr>
</tbody>
</table>
Family Satisfaction with Care in the ICU®. In order to show family satisfaction with care, the pre-validated Family Satisfaction with Care in the ICU® (FS-ICU 24) surveys were passed out to families meeting criteria for either the ICU family meeting or the palliative care family meeting. Between April and the end of June 2014, a total of 28 families were offered surveys. The number of families surveyed after ICU family meetings was 20; the remainder were surveyed after a palliative care meeting. A total of 18 surveys were returned within the three month period. Out of nine families surveyed in April, the return rate was 89%. May saw ten families surveyed with a return rate of 60%, and nine families were surveyed in June with a return rate of 44%. Six returned surveys were only partially completed. Three of those had one question missing, one had two questions missing, one had three questions missing and one was missing six.

The scores were tabulated following the descriptions from Curtis et al. (2008) and Schwarzkopf et al. (2013). Individual items of the FS-ICU 24 were transformed to a scale of values between 0 and 100, with higher numbers indicating greater satisfaction (0 = poor, 25 = fair, 50 = good, 75 = very good, 100 = excellent). This scoring approach provided a Total Score (24 items), as well as subscale ratings for Satisfaction with Care (14 items) and Satisfaction with Information/Decision Making (10 items) (Curtis et al., 2008). Each of the surveys was assigned a total score using the previous description. The questions that had been left unanswered in the six partially-completed surveys were left blank and assigned a zero as part of the total score. The means of the combined totals from the FS-ICU 24 are represented in Figure 14 alongside their respective potential highest score. The mean for the Total Score was 80% of the potential total
points. The Satisfaction Scores were 78% of the potential total, and Information/Decision Making ranked at 83% of its corresponding total.

**Figure 14**

FS-ICU 24 Survey Subscales. Mean Scores

Due to the small sample size, the monthly mean scores for each subscale rating were also compared side-by-side and are represented in Figure 15 for the Total Score comparison. Despite an obvious increase in mean scores, there was considerable variation overlap between the months, and therefore no real evidence of any significant difference.

Figure 16 represents the monthly scores from the Satisfaction with Care section. There was an increase in the mean scores throughout each of the three months, but once again, there was a large amount of variability in June, and overlap between April, May and June. As a result, there was no real difference in the scores for the three months. Similar conclusions can be drawn from the results from the Information/Decision Making section which is depicted in Figure 17.
**Figure 15**

FS-ICU 24 Survey Monthly Mean Scores (± SE)

FS-ICU 24 Survey Monthly Mean Scores

<table>
<thead>
<tr>
<th>Month</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Possible Score</td>
<td>2400</td>
</tr>
<tr>
<td>April</td>
<td>1707</td>
</tr>
<tr>
<td>May</td>
<td>1915</td>
</tr>
<tr>
<td>June</td>
<td>2142</td>
</tr>
</tbody>
</table>

**Figure 16**

FS-ICU 24 Satisfaction with Care. Mean Scores (± SE)

FS-ICU 24 Satisfaction with Care. Mean Scores

<table>
<thead>
<tr>
<th>Month</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Possible Score</td>
<td>1400</td>
</tr>
<tr>
<td>April</td>
<td>986</td>
</tr>
<tr>
<td>May</td>
<td>1045</td>
</tr>
<tr>
<td>June</td>
<td>1250</td>
</tr>
</tbody>
</table>
Figure 17

FS-ICU 24 Information/Decision Making. Mean Scores (± SE)

![Bar chart showing mean scores for FS-ICU 24 Information/Decision Making from April to June]

**RN Survey.** The RN Survey was given to the corresponding nurse at the same time that the family surveys were offered. As with the family surveys, there were a total of 28 surveys offered to the nursing staff. The return rate was a total of 24, 100% for April, 90% for May and 78% for June. The individual items on this survey were tabulated using the same transformation scale that was used in the family survey, with values between 0 and 100; higher numbers indicating greater satisfaction (0 = poor, 25 = fair, 50 = good, 75 = very good, 100 = excellent). The mean scores from April were 78%, May 85% and June 79%, of the total possible points, and are reported in Figure 18.
Seven questions in this survey were written to correspond with eight questions from the FS-ICU 24 family survey. Three of the questions were related to the Satisfaction with Care section from the FS-ICU 24. Two of these questions were covered by one all-inclusive question in the RN Survey and, as such, the score for this all-inclusive question was doubled for the final comparison with the FS-ICU 24 results. The remaining five questions directly related to the Information/Decision Making segment. The results showed that the nurses mean scores were greater than that of the family, both in regard to the Satisfaction with Care and the Information/Decision Making sections, but due to the variability there was no evidence of a significant difference between the two. These overall results are depicted in Figure 19.
Figure 19

FS-ICU 24/RN Survey Comparable Questions. Mean Scores (± SE)

![FS-ICU 24/RN Survey Comparable Questions. Mean Scores](image)

Figure 20 shows a breakdown of the representative equivalent questions from the FS-ICU 24, to the corresponding questions in the RN Survey for Satisfaction with Care, and Figure 21 also shows the comparison of the individual questions from the Information/Decision Making sections. The results from the Satisfaction with Care showed that the nurses scored higher than the families in the Courtesy and Respect Questions, and lower in the provision of Emotional Support Questions. However, with the large amount of variability, there was no significant difference between the two. The results from all the questions in the Information/Decision Making section of the surveys shown in Figure 21 were also fairly similar.
Figure 20
FS-ICU 24/RN Survey Satisfaction with Care Comparison. Mean Scores (± SE)

Figure 21
FS-ICU 24/RN Survey Information/Decision Making Comparison. Mean Scores (± SE)
**Palliative care charting.** Improved charting was represented by criteria that noted specific mention of meeting the trigger criteria, code status, and Goals-of-Care. In addition, it was represented by staff participation in the proactive ICU family meetings along with, a description of the key discussion points from the meeting, within the progress notes. The increase in appropriate charting in the progress notes by both the physicians and RN staff was evident, whether or not the use of the Smart Phrase was utilized. The average percentages are shown in Table 12.

Table 12

**Palliative Care Documentation. Monthly Comparison**

<table>
<thead>
<tr>
<th>Month</th>
<th># Patients Met Trigger</th>
<th>Palliative Care Documentation (Average %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>10</td>
<td>23%</td>
</tr>
<tr>
<td>December</td>
<td>14</td>
<td>33%</td>
</tr>
<tr>
<td>January</td>
<td>17</td>
<td>37%</td>
</tr>
<tr>
<td>Post-Intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>14</td>
<td>64%</td>
</tr>
<tr>
<td>May</td>
<td>16</td>
<td>69%</td>
</tr>
<tr>
<td>June</td>
<td>17</td>
<td>94%</td>
</tr>
</tbody>
</table>

**Summary**

Following the Iowa Model of EBP, implementation of the project commenced after a one week pilot which showed the feasibility of the process. The project ran officially for three months in which ongoing process reinforcement was provided for staff and physicians. During that time, families of patients who made the trigger criteria for palliative care, along with the
corresponding RN, were surveyed. Staff were also administered various evaluation tools as part of the continuous assessment of their understanding of the palliative care process.

This multi-faceted, quality-improvement intervention was designed to improve the quality of palliative care in the ICU. The collection of data for the three months both pre- and post-intervention, produced the expected outcome of increased identification of Goals-of-Care, and code status, by day three of meeting the trigger criteria. With the increased awareness by ICU staff, of the necessity of early identification of these afore-mentioned outcomes, came an improved recognition of the need for a proactive ICU family meeting. This was reflected in the increase in numbers of ICU family meetings performed during the interventional phase. A proactive PAL family meeting resulted after ongoing issues were identified that could not be resolved easily during the ICU family meeting. As a result, the numbers of palliative care meetings also increased. The results from both the family and nurse’s surveys were generally positive. Therefore, this study has demonstrated the value of a palliative care program to the patient, family and ICU staff.
Chapter 5. Discussion

Introduction

The integration of basic palliative care principles into the ICU at Kaiser was implemented following the Iowa Model of Evidence-Based Practice (Titler et al., 2001). Once fully implemented, a three month pre- and post-intervention sample of data was collected. The outcome measures were reported as an aggregate data set, with the intent to show trends before and after intervention. Results showed increases in the early identification of Goals-of-Care and code status, which led to an increase in the numbers of ICU family meetings, and also an increase in the numbers of palliative care consultations. This section is devoted to the discussion of the final outcome data collection, comparison of outcomes to objectives, interpretation of findings, effectiveness of the marketing plan, limitations, implications and plans for dissemination.

Expected and Actual Outcomes Relative to Objectives

The original goal was to promote the early identification of Goals-of-Care, Advance Directives, surrogate, code status, and a proactive family meeting. This was done in order to identify patient and family preferences for the direction of care in a more timely manner for the adult patients in the ICU, and to improve the utilization of the existing palliative care team. We sought to reach that goal by asking the clinical question: Will the initiation of a palliative care standardized program increase the numbers of palliative care consultations for newly admitted adult intensive care patients, and also improve the early identification of Goals-of-Care, and quality of end-of-life care, in the intensive care unit (ICU)?
The early identification of Goals-of-Care, code status and proactive ICU meetings increased as expected, but the early identification of Advance Directives and surrogate dropped slightly, which was unexpected. The overall trend of average ICU length of stay, and hospital length of stay, dropped as expected, and the average numbers of intubated days also decreased slightly but without meeting significance. The rise in numbers of proactive, ICU family meetings, along with an increase in numbers of palliative care meetings, specifically met the intent of the original objectives.

The evaluation objectives were set at an expectation that 75% of the ICU RN staff would be trained on the process by the middle of March. This goal was met with 83% of RN staff that completed the training prior to the implementation of the process at the beginning of April. However, for 75% of RN staff to be able to articulate 80% of the basic palliative care principles, it took the entire interventional period of three months. As a result, the initial objective of reaching this goal prior to implementation was never achieved. Despite this, the intent to increase documentation by 50% by the second month of implementation, was met and exceeded.

**Interpretation of Findings**

**Outcome measures.** Since this was a quality-improvement project without experimental design and randomization, the majority of the outcome measures were reported as changes in trends. Those measures that were reported as a mean score, however, had either an independent or paired T-test applied, depending upon the sample. A chi-square test was also utilized for the outcomes reported as frequencies. Results saw a decrease in length of ICU stay, but the difference pre- and post-intervention, was not significant. This may, in part, be due to the sample size. There was, however, a significant difference in the length of hospital stay between the pre-
and post-intervention samples, but with a small effect size. Consequently, a larger sample size might have provided greater evidence of effect. It is uncertain, however, how much of an impact a reduction in the ICU length of stay would have had on total hospital costs. It is also unclear if a reduced ICU length of stay would have led to a less-prolonged time of dying, diminished suffering for dying patients, or other values for patients and families (Scheunemann et al., 2011).

The mean difference in the number of days in which patients were intubated decreased, but not significantly. However, these results together with those from the length of hospital stay in a larger sample, could have important implications for the financial impact of early identification of Goals-of-Care and code status.

The increase in the percentage of both the early identification of Goals-of-Care, and code status from 24-70%, and from 39-79%, respectively, showed that the effects of the process were positive and significant. This was reflected in the substantial improvement in documentation, which exceeded the 50% benchmark, by both RN and physician staff. This indicated that the process of incorporating the PAL principles in the daily routine of the ICU, was successful in producing these expected changes. Despite this increased trend, it is uncertain whether these results correlated with the increase in ICU meetings and/or decrease in length of both ICU and hospital stay.

The nursing staff also used the PAL brochure in increased numbers, but the use of the videos was neglected. Traditionally, it falls to the physician to inform families about a pending PAL consultation. Once the family is aware of the need for a consultation, the RN supplements the information and any questions with printed material. This project was designed so that the offer of the video was to be given by the RN and not the physician. The lack of results in this
area could underscore the continued staff discomfort with the initiation of sensitive discussions regarding Advance Directives, code status, and end-of-life issues. While re-evaluating the use of the videos, reinforcement of the distribution of the PAL brochure will be needed. As demonstrated by Scheunemann et al. (2011), printed information can improve family comprehension and emotional outcomes, and there is supporting evidence for the offering of this printed information by the ICU team in order to improve end-of-life care and family satisfaction.

There were changes in the trends of both the proactive ICU and PAL family meeting outcomes. The numbers of ICU meetings by day three of meeting the trigger criteria, increased significantly in the post-interventional phase. In addition there was a decrease in the missed potential ICU meetings. These changes lent credence to the process by the ICU staff. The post-interventional sample also showed a significant doubling in the percent of changes in code status that resulted after the ICU meeting. Changes in treatment after the ICU meetings also increased in the post interventional sample but not significantly. What is uncertain, is the correlation between these increases and the decrease in length of stay in the ICU and hospital, and the numbers of intubated days.

The numbers of PAL meetings rose, but by only 10%. This could be due to the increase in ICU meetings which may have resulted in a decreased need for the PAL team. This then lends credibility to the idea that if the basic palliative care principles are utilized on a regular basis in an ICU, the majority of issues can be resolved, reserving the PAL team for more specialized cases. This underscores the importance of the early proactive ICU family meeting.

The numbers of patients who met the trigger criteria and also the early identification of Advance Directives and surrogate, decreased slightly in the post-interventional period, but
remained above 90%. The social workers are currently developing tracking criteria, but this percentage appears consistent with the identification of Advance Directives for all patients in the ICU. At Kaiser, the identification of Advance Directives and surrogate is the responsibility of the social worker. The ICU has a designated full time medical social worker, but this process was designed to increase awareness of the RN staff so that when the ICU social worker is not available on nights, weekends and holidays, an on-call social worker would be notified of the need for early identification of either Advance Directives or surrogate, or both.

The identification of a surrogate was considered non-applicable if the Advance Directives were the primary source of information, whether preexisting, or with the need for completion during the hospitalization. The social workers were notified of concurrent need for an established surrogate in the progress notes.

**Pre/Post Test.** The Pre/Post Test was originally designed with the key palliative care principles in mind. It had also been initially administered to a mixture of RN, RT and ward clerk staff, without distinction. This was in an attempt to include all members of the interdisciplinary team in the education, but as each of the tests was not tracked individually, it was impossible to identify who among the group had been influenced by the process. The numbers of staff to whom this tool was administered, decreased at the three month follow-up due to a decision to increase selectivity. At three months, this sample consisted of RN staff only, unlike the mixed group of clinicians to whom the pre- and post-education tool were administered. The RN staff were the group of clinicians on which the project was targeted to have the greatest impact, as they were the ones who needed to initiate all of the project steps. The three month post intervention sample reflected the highest percentage of those who scored over 80%. Whether this
resulted from the homogeneous group of staff or sufficient time in which to understand the process, or both, is uncertain.

In looking only at the Knowledge Questions, there was a significant difference between the pre- and post-education mean scores. Although there was a slight drop in the mean scores comparing the post-education to the three months sample, this was not significant. It was also uncertain whether the change in the homogeneity of the clinician sample had any influence on the scores.

The Current Practice questions showed trends in the positive direction. They included the question, “I currently provide palliative care to my terminal patients only”. This question was designed to elicit a negative response as the correct answer. This is seen in the low percentage results from this particular question in Figure 11. Despite the manner in which this question was written, the majority of staff were able to answer appropriately, realizing that palliative care can be offered to all patients and not just to those with terminal conditions.

The Opinion Questions showed a slight increased trend, with the exception of the question: “RNs should address Advance Directives, code status and surrogate”. The percentage from this particular question increased from 69-93% by the third month of project implementation, but the significance of this, and the effect of the homogeneity of the clinician sample was uncertain. The Opinion Questions were also originally designed to be either “yes or no”. This unfortunately limited the statistical analysis potential, since there was no room for neutrality.

**Process Evaluation Checklist.** Despite an obvious increase in Pre/Post Test scores from pre-implementation to post-implementation, within the first three weeks it was evident that, even
with the visual reminders, the staff were forgetting key steps in the process. Several weeks after the pilot test, it was noted that the RNs were identifying patients that met the trigger criteria and requesting a palliative care consultation prematurely, bypassing the ICU family meeting process. The Pre/Post Test was not to be re-administered until the third month, so a Process Evaluation Checklist was designed and introduced at the end of the first month to assist in meeting the objective that 75% of RN staff would be able to articulate 80% of the process for palliative care in the ICU. Since this project was geared toward those who were directly involved in the process, only the RN staff were evaluated. The staff were asked to articulate the basic process in a series of closed-ended questions. Their answers were entered on the checklist and graded. This Process Evaluation Checklist was issued at the end of each month during the intervention phase.

The results from this checklist showed evident increases in the mean score over the three months that the staff were evaluated. The staff did not like being “tested” but quickly learned that the situation was not designed to be stressful or intimidating. Since “cheat sheets” had been posted throughout the ICU, it became apparent that as long as they knew where to obtain their information, and that using these “cheat sheets” was allowed during times that they were being questioned, the testing periods were acceptable. As a result, they were more open and willing to search for their “cheat sheets” when being questioned. A handful of staff had actually memorized the process and challenged themselves to recite the process without referring to their visual aids.

Although the present study was of a non-experimental design and the Process Evaluation Checklist had not been previously validated or reliable, there was evidence that there was significant improvement in the mean of the scores between April and May, and then again between May and June. The scores from this tool were probably the most representative of the
gain in understanding of the process by the staff. This is because the checklist was targeted solely toward those who were directly responsible for implementation of the process. It is also noteworthy that the initial goal, in which 75% of staff would be able to articulate 80% of the process by implementation, was never met. Instead this goal was reached only after a period of three months, which was the time it took for an early majority to adopt the process.

Rogers (2003) reviewed the stages of the innovation-decision process, and the effects of the various communication channels on the process. The RN staff maneuvered through all five stages of the innovation-decision process, including the: a) knowledge stage, b) persuasion stage, c) decision stage, d) implementation stage, and the e) confirmation stage, in varying degrees (Rogers, 2003). The majority traversed through the persuasion stage fairly rapidly. Although there was agreement for the need for a structured palliative care program in the ICU, the remaining stages, including the knowledge stage, required several months for a performance change without prompting, to be noticed. Rogers (2003) discussed the importance of mass media at the knowledge stage, and although this means of transmitting information can reach larger audiences rapidly, and create knowledge and spread information, it was not effective in embedding and solidifying concepts that were necessary for performance. This was evident once specific cases were discussed in detail. It was noted that despite the educational material in strategically placed locations, and each of the staff receiving a one-to-one meetings, they were initially unable to work through the decision-making process. The interpersonal channels were used with some success in the persuasion stage. The one-to-one exchanges were used initially as the main educational means of providing the principle steps in the process, but resistance came from the staff’s preconceived opinions regarding palliative care (Rogers, 2003).
The team and team leader initiated this project with preconceived ideas of which staff would fall into the various adopter categories. The innovators other than the Evidence-Based Practice team members, were few, but it became apparent within the first several weeks of the project, that they would be a major asset to the project. The early adopters were unexpected. These were the individuals who experienced first-hand the positive results from the project, and were not afraid to broadcast their feelings. The early majority, which encompassed approximately 20% of the staff, were in the process of slowly increasing at the third month (Rogers, 2003). Rogers (2003) estimated that the early majority takes approximately one year to adopt an innovation.

**Family Satisfaction with Care in the ICU**. The total percentage scores for the FS-ICU 24 were approximately 80%, including those surveys that were returned with missing questions. These missing questions were assigned a zero and thus impacted on the final scores. Despite a slight rise in the mean scores throughout the three months, there was an observable amount of variation. This also held true when comparing the monthly scores from the separate sections of the FS-ICU 24.

The resultant sample size was small, with 18 of the total 28 surveys returned. Despite this, the return rate was surprisingly high. The literature shows that with sample sizes greater than 1000, the average return rate is approximately 40% for families surveyed in ICUs (Curtis et al., 2011; Decato et al., 2013; Schwarzkopf et al., 2013). The families in the various reports had been sent their surveys through the mail, unlike the present project, in which the surveys were handed to the families prior to leaving the ICU. It is unknown whether this, along with families being told that their answers would be sent to a neutral location, impacted on the scores.
**RN Survey.** It was not possible to obtain a pre-validated survey for the purposes of evaluating the staff’s opinion of the program process, so the RN Survey was designed by the team leader, who adopted questions from Atkinson (2007), who utilized the 5 attributes from the Diffusion of Innovations by Rogers (1995). This survey was based on the education that staff obtained during their in-service period, and a number of the questions were written to reflect specific questions from the FS-ICU 24 in a direct comparison between the two surveys. The RN Survey was not released prior to the education of the staff, and thus it was not possible to calculate reliability. In addition, there was no pre-existing comparable tool available, and so validity was also called into question. This survey was, however, reviewed by a biostatistician who is also an expert in psychometrics, and several questions were altered as a result of his recommendations.

The mean scores between the three interventional months were fairly consistent. This occurred despite a wide range of nurses and a minimum of reports from the same RN caring for different patients. Those nurses who filled out multiple surveys tended to provide the same score for each question despite the fact that each survey represented a different patient, family, and ICU experience.

The return rate for the RN Survey was also relatively higher, at 100% for April, 90% for May and 78% for June, than that noted in the literature. The literature cites return rates of 50-60% in sample sizes greater than 1000 (Curtis et al., 2011; Decato et al., 2013). Part of the reason for this higher than normal return rate, could be attributed to the distribution of the survey. The questions were given to the RN staff at the same time that the family survey was offered. Another form to fill out, along with the multitude of routine forms that are necessary, resulted in
the majority of staff completing the RN Survey as fast as possible. The staff also needed to hand in their completed surveys to the clinical coordinator, rather than the team leader. This may have provided a heightened perception that the survey process was also being endorsed by management.

The comparison between the FS-ICU 24 surveys’ mean scores and the corresponding questions in the RN Survey, demonstrated only a small difference between the two. The nursing staff tended to rate themselves higher than the families, in both the Satisfaction with Care as well as the Information/Decision Making sections. This underscores the importance of realizing the manner in which clinicians impart information.

Treatment decisions are complex in the ICU, and communication is essential for designing treatments that incorporate patient values. Families often have a low level of comprehension about the ICU, and the ICU staff is often not fully aware of their informational needs. As a consequence, patient’s unique values and preferences may often not be respected. Communication also affects patients and family outcomes, therefore ensuring high-quality family communication is a priority. Current communication in many ICUs is often inconsistent, insufficient, and of poor quality. The literature notes differences between nurses’ and physicians’ communication regarding honest and completeness of information, with worse ratings for nurses (Scheunemann et al., 2011; Schwarzkopf et al., 2013).

Communication is complicated by time constraints, lack of communication skills training, unclear goals and processes, and challenging family dynamics. Families consider daily communication of clearly understandable information to be highly important, yet they rarely perceive communication as being adequate. While the clinical teams focus on “one-time
transactions” such as the do-not-resuscitate (DNR) order for therapeutic withdrawal, the family focus is a “continuous process”. As a result, time is needed for informational, relational, spiritual, cultural processing, acceptance, and other adaptations to occur. Religious beliefs, ethnicity, and cultural background of the parties involved, may all affect the interventions received or withdrawn when caring for dying patients, and heightened clinician awareness is warranted (Adolph et al., 2011).

Effectiveness of the Marketing Plan

The nursing staff were the intended target for the majority of the educational efforts, as they were the major group of clinicians that were responsible for early identification of key elements, and then the ones that needed to implement steps necessary for the progression of the process. Both mass media and interpersonal channels, with one-to-one meetings, were used as the main educational strategy (Rogers, 2003). Though this took a large amount of time and effort, it was effective in reaching the majority of staff members, both on days and nights. The electronic newsletter ended up being only a supplement, as the majority of staff felt that they were too busy during a work day to have the time to access their Kaiser email. The individual handouts that were used as a visual tool were not utilized to a large extent, but the “cheat sheets” that had been laminated and placed on each computer, were used extensively each month that the nurses were “tested” on the process. This resulted in a number of requests for individual, laminated copies that could be attached to the name badges. The addition of the Smart Phrase for charting was utilized immediately by a subset of the nursing population that saw this as a means to quickly chart all of the key components without having to refer to outside sources. The large poster board that was erected in the lounge, ended up being moved into the bathroom. This was
due, in part, to Administration's need for that particular wall space. Numerous staff felt that the bathroom was an effective place for the distribution of information.

The addition of the Process Evaluation Checklist, and its monthly “testing”, was presented to the staff as mandatory. Although it represented an example of an “authority innovation-decision” (Rogers, 2003), it achieved its purpose without huge resistance.

The physician staff were updated on a regular basis. Cheat sheets were developed and placed on their personal computers. This provided a template for their charting, which was especially important once they had conducted an ICU family meeting. The physicians all fell into the “early adopter” category (Rogers, 2003). As a result, the rate of adoption by the majority of the physicians was immediate, and reminders to report on all the key measures that were discussed during the ICU family meetings were generally not needed.

The lessons learned from this experience are that multiple modalities are necessary when presenting projects in the ICU. These, along with constant daily evaluation, were necessary to ensure adherence. It was also necessary to assess and structure the workflow to fit in with the program. Assimilation of an innovation is much more likely to succeed if the components improve, or at least avoid hindering, work flow (Titler, 2010). The team leader and clinical coordinator maintained a constant daily presence in the unit for the first two months. This was necessary for staff reminders regarding the process, to identify potential issues, and to assist staff and physicians with any abnormal palliative care situations. At the three month mark, it was evident that the staff were starting to embrace the process. They were more apt to ask questions, and were able to verbalize key components of the process as it progressed into the third month.
Limitations

With this quality-improvement project, there were limitations that might have impacted not only the process, but also the resulting measurements. Quality of care can be evaluated on the basis of structure, process or outcomes. Compared with other approaches, process measures are generally more sensitive and practical, and are also advantageous in that they focus on activities that are actionable by healthcare professionals. However, the validity and credibility of such measures depend ultimately on showing that variations in the processes of interest are associated with improved outcomes (Nelson et al., 2006b). There has been extensive work on palliative care quality metrics over the past fifteen years, including individual institution and cooperative research projects internationally, to evaluate various tools and assessment methodologies. Despite the existence of these tools, they are for the most part, designed to measure satisfaction with end-of-life care. This quality-improvement project necessitated the development of several evaluation instruments to measure the program process, but they were neither reliable nor validated.

The family surveys were handed to those who triggered the screening criteria in the ICU, and received an ICU family meeting by day three, a palliative care family meeting by day five, or who died prior to day three. A comparison of results was made, but potential bias was possible since the palliative care team could have been requested in situations with significant patient and family issues, other than those meeting the project criteria. Another issue that became evident was the preconceived ideas from families about palliative care. A number of families refused to meet with the palliative care team. Unfortunately, these particular cases were the most volatile, with multiple family dynamics and ongoing repercussions for both the patient and staff. These
families were probably the most appropriate for a PAL consult, but the patients died prior to resolution of any conflict.

The Pre/Post Test was administered to staff prior to the initiation of the education process, but after the TJC accreditation of the existing palliative care team. Because of a hospital-wide effort to educate all staff on the pending accreditation process, there were multiple ongoing external projects that may have had an impact on this program’s results. This tool was also initially administered to a combination of health-care staff, instead of specifically to the RN staff, and a comparison between the pre- and post-test results was not made at the individual level. In an attempt to maintain anonymity, a master code list was not formed, and, in retrospect, this limited the final statistical application. The administration of the tool at the third month included only the RN staff, in an attempt to focus on the targeted group of clinicians. This, however, changed the comparison of scores.

The staff initially had a number of individuals who were very resistant to the project. Although they were resigned to listen to the education, it was not enough to change their practice (Titler, 2010). A number also had strong opinions regarding palliative care, and these were similar to the family misconceptions regarding the purpose of palliative care. Coincidently, during the time in which the project was implemented, a number of reports and television programs dealing with the need for palliative care, and the issues facing the country with regard to end-of-life care in multiple settings, were aired. These inadvertently helped to reinforce key principles that were being emphasized, and also helped to validate the present project (CBS Sunday Morning 4/27/14).
The guidelines were written to allow for flexibility for the day chosen in which to complete staff discussions regarding Goals-of-Care, designation of surrogate, Advance Directives, and code status with families. Flexibility was necessary, since limiting factors included the size of the palliative care team, and days in which the ICU census precluded completion of these measures. The lack of availability of a social worker necessary for finalization of some of the process measures on nights and weekends, was also a limiting factor.

There were days in which the ICU patient census was at, or beyond, maximum capacity. This necessitated the current working definition of the proactive ICU family meeting to be defined, not by amount of time spent with the family, but by the topics discussed. These included an update with the primary decision-maker and family members on the patient’s current status, consistency/conflict with Goals-of-Care and Advance Directives, and code status. The documentation of the discussion in the EMR included these salient points, along with outcomes of the conversation and plan of care. Although these meetings resulted sometimes in less than 15 minutes spent with families, it was felt that this definition was feasible, as long as the key palliative care concepts were targeted in the discussions.

After several days of project implementation, it was evident that there were a number of patients and family circumstances that impacted on all aspects of the early identification process. Examples of these, were patients who were admitted with subarachnoid hemorrhages and received coiling for their aneurysms. The standard treatment for these patients includes a stay in the ICU of greater than seven days to monitor for vasospasm. As a result, these patients needed to have their trigger criteria individualized. There were also surgical patients who had very slow recovery times, who ultimately needed tracheostomy and feeding tube insertions prior to
improving enough to be extubated successfully. This created confusion among staff, and it was necessary to hold on-going discussions regarding the rationale behind patients meeting, or not meeting criteria, for first an ICU family meeting, and then, whether or not a palliative care consultation was subsequently necessary. The ICU also had several patients who were without family, and the process to assign a decision maker was fraught with attempts by various opposing interested parties to be the appointed surrogate. This became a very challenging process but the staff was very open to the discussions.

The measures utilized for this study mostly relied on medical record abstraction. Studies have shown that chart abstraction underestimates quality of care by, at most 10%, as compared with direct observation, and may even overestimate quality in some instances. As data are lacking on performance of medical record abstraction in palliative care, poor documentation may limit the utility of some of these candidate measures (Mularski et al., 2006). During the chart reviews, it was noted that documentation was inconsistent. These inconsistencies were apparent, not only with the RN staff, but also with the physician staff, and it was sometimes difficult to find specific information. This necessitated the reading all of the progress notes. The chart reviews and data collection were performed by the team leader. This resulted in a large time allotment since every progress note was reviewed to search for appropriate documentation. As the data collection progressed, increased numbers of variables were also noted that had not originally been foreseen. This necessitated a return to the original data to reexamine some of the measures. This did, however, allow for overall consistency in the data collection.

The data sample represented only three months both prior to and post-intervention. As a result, the timing of the data collected along with the duration of the collection, may have
precluded a true representation of the population. Since this program was a quality-improvement project and not an experimental design, the robustness of the inferential statistical results was uncertain.

Implications

Evidence-based practice. The various outcome measures lead to important implications for the evidence-based practice of care for our patients. Palliative care is increasingly accepted as an essential component of comprehensive care for critically ill patients, regardless of diagnosis or prognosis, and from the time of admission to the ICU (Aslakson, Curtis & Nelson, 2014). However, with only a small number of specialized palliative care teams available, it is necessary to incorporate basic palliative care principles into the daily practice of the ICU. This project was able to show that early identification of Goals-of-Care, Advance Directives, surrogate where applicable, and code status can lead to an early proactive ICU family meeting. This then results in potentially improved communication and decision-making processes by the families. These steps were performed by the ICU staff. The palliative care team was only brought in when the palliative care efforts performed by the ICU staff were ineffective. The goal of an increased number of palliative care meetings was met, but it became evident that the goal to increase utilization of the palliative care team, should be amended to reflect, “appropriate increased utilization of the palliative care team”. This underscores the importance of the proactive, ICU family meeting. With the incorporation of basic palliative care principles into the traditional care of the ICU, the increase in ICU family meetings provided a potential opportunity to make appropriate treatment changes, thereby sometimes attenuating the need for the PAL team. This
allowed the PAL team to be utilized appropriately in those cases which needed specialized attention.

The literature notes a paradigm shift occurring toward the integration of palliative care principles \textit{a priori} for all admissions to the ICU. Similarly to this project, this shift involves the incorporation of palliative care so that the principles become embedded in daily ICU care. These practices, along with the use of specialty services, results in sustained patient satisfaction and is advocated by multiple professional critical care societies, which call for delivery of primary palliative care by ICU clinicians as well as provision of specialist palliative care, when needed (Adolph et al., 2011; Aslakson, Curtis & Nelson, 2014).

\textbf{Administration}. The potential for cost savings from the implementation of these basic palliative care principles is a foregone conclusion. The literature shows that a majority of expenditures occur at the end-of-life, and in the ICU. Among the nearly 2.5 million annual deaths in the US, one third occur in the hospital, and 17\% in the ICU. Despite providing less than 10\% of the beds in the US hospitals, an ICU can account for up to 80\% of the total in-patient costs spent on terminal hospitalizations (Dasta, McLaughlin, Mody, & Piech, 2005; Zilberberg & Shorr, 2012).

Because a large proportion of a hospitals inpatient reimbursement is per admission (per diagnosis), length of stay can have a significant impact on profitability; the shorter the length of stay, the greater the profitability (Health Administration Press, 2009). When associated with an ICU admission, the mean hospital length of stay was thirteen days, compared to nine days if the ICU was not needed, and substantially more expensive (Zilberberg & Shorr, 2012).
Though decreased length of stay may translate into lower direct and ancillary costs, the literature supports the idea that the majority of costs for an ICU stay occur within the first several days of admission (Kahn, 2006). Average costs, defined as, total costs divided by volume (Gapenski, 2013, p. 98), include the first few days of admission in an ICU. These are typically much more expensive than subsequent days, because the majority of the costs are fixed. Reducing length of stay therefore, only saves on marginal costs, or the cost of each additional ICU day, rather than average costs. As a result, shortening ICU length of stay may simply exchange ICU for medical surgical days (Kahn, 2006). The caveat is that the projected daily costs in an ICU are far greater than those on the wards. It has been estimated that daily critical care costs three to five times more than care provided on a general medical surgical floor, and that much of this cost is due to the types of interventions provided in the ICU (Dasta et al., 2005). Thus, reductions in ICU length of stay need to also be accompanied by decreases in hospital length of stay (Kahn, Rubenfeld, Rohrbach & Fuchs, 2008), both of which are evident in the results from this project.

Most studies demonstrate significant difference in ICU utilization for intervention patients, compared with control patients following palliative care consultation. This is seen in survivors who received palliative care consults using 75% less intensive care, and also in decedents with a 50% reduction when matched to usual care patients (Smith & Cassel, 2009).

Along with reductions in the length of stay in the ICU and the hospital, Penrod et al. (2006), were able to show that palliative care as an intervention, attenuated not only the length of stay in an ICU, but also the potential subsequent admissions into an ICU. This therefore saved on the cost of the hospitalization by avoiding the ICU in entirety (Penrod et al., 2006). The
literature shows that palliative care during terminal hospitalization is associated with a judicious use of inpatient resources, particularly for the ICU. The increasing scarcity of resources necessitates how we utilize those resources, and end-of-life care will have a large impact on the allocation of those resources.

**Information systems.** It is important that the social system ensure not only the policies and procedures, but that the documentation system support the use of the EBP (Titler, 2010). The nursing staff have requested that the trigger criteria and various components of this project be incorporated as an “alert” into the existing electronic medical record. With this possibility, the trigger criteria addition to the ICU nursing flow sheet, could also signify the need for an ICU meeting, and then can be further modified to signal the need for a palliative care consultation, if necessary. The admission flow sheet currently has one “yes and no” question regarding whether the patient has Advance Directives. Further options could also possibly be added to the drop-down menu. There are future plans within the national Kaiser system to initiate a new “Healthconnect Activity Tab” that will be incorporated into the existing EMR. This tab will be used for a pending “life-care planning” initiative that is still in its infancy developmental stage. There are a multitude of future possibilities toward the potential incorporation of any, or all of the components of palliative and end-of-life care. At present, the Smart Phrase created and utilized during the project will continue to provide the needed charting guidance within the progress notes until such time, that the requested additions to the EMR are deemed necessary by management.

On a wider scale, a system design in which a palliative care trigger could be incorporated into an early warning system embedded within the electronic medical record, is not outside the
realm of possibilities. Early warning scores (EWS), also known as physiological, aggregate weighted track and trigger systems, are recommended as part of an early recognition and response to patient deterioration. These are being designed and adopted as part of the electronic health system for pre hospital and hospitalized patients in England (Fullerton, Price, Silvey, Brace, & Perkins, 2012; Smith, Prytherch, Meredith, Schmidt, & Featherstone, 2013).

These systems allocate points in a weighted manner, based on the derangement of patients’ vital signs variables (e.g., pulse rate, breathing rate, and blood pressure) from arbitrarily agreed “normal” ranges. The sum of the allocated points, the early warning score, is used via pre-defined escalation protocols, to facilitate objective decision-making and ensure a suitable clinical response. These are considered essential components of the ‘Chain of Prevention’, a paradigm for structuring the early recognition and response to patient deterioration (Fullerton et al., 2012).

These types of systems would be valuable not only for the identification of patients who warrant aggressive care, but also for those who would profit from a timely and proactive palliative care consultation. The terminal patient who had been admitted for an acute episode, and is headed for a worsening of condition that is yet to be determined, would benefit from an early opportunity for an appropriate clinical intervention. These systems demonstrate the ability to discriminate patients at risk of the combined outcome of cardiac arrest, and unanticipated ICU admission or death within twenty four hours. This provides ample opportunity for an appropriate clinical intervention to change a patient’s outcome for both those who warrant aggressive care, and those who necessitate palliative care and/or end of life measures (Smith et al., 2013).
**Education.** This project utilized behavioral-change communication to provide tailored messages, and a supportive environment, to persuade individuals to make positive health behavior modifications through specific techniques of change. The techniques used included informational, performance-based and problem-solving techniques (Briscoe & Aboud, 2012). It was demonstrated that a behavioral change is possible within the ICU staff. Despite the resistance from a percentage of individuals, it was possible to effect transformation using the principles from the Diffusion of Innovations by Rogers (2003). The majority of the staff adopted the change at approximately three months, and became aware of the benefits which then served to further reinforce the process.

Ongoing education is a given in an ICU environment. The Pre/Post Test will be part of continuing education efforts. For future use in clinical competency fairs, the Opinion Questions were altered to include the addition of a Likert scale for increased statistical application. For the purposes of this project, however, it was deemed necessary to remain with the original design.

There is also considerable variation in the practices and training among critical care nurses for end-of-life care. Nurses play a key role in the withdrawal of life support as they are at the bedside more than any other member of the ICU team, and implement the orders to remove life support. Unfortunately, ICU nurses may not always receive adequate professional training to care for patients at the end-of-life. Effective end-of-life communication is necessary to provide an accurate assessment of physical, psychological, spiritual and social dimensions of care (Ferrell & Coyle, 2010). The International Council of Nurses' (1997) mandated that nurses have a unique and primary responsibility for ensuring that individuals at the end-of-life experience a peaceful death (ICN, 1997). Accrediting bodies such as the Commission on Collegiate Nursing
Education (CCNE) require palliative care, and end-of-life content, for Bachelor of Science in Nursing (BSN) curriculums (AACN, 2008). These requirements, along with the American Association of Colleges of Nursing (AACN) Recommended Competencies and Curricular Guidelines for End-of-Life Nursing Care, are designed to provide guidance for initiating and updating curriculums (AACN, 2014). Nurses who have practiced for more than 20 years however, had little formal death education and training, experiencing the realities of care only upon entering the work force. This has resulted in a lack of evidence-based experience which is insufficient to provide mentoring and coaching for the current generation of bedside nurses. As a result, enhancing end-of-life training and support for ICU nurses will become necessary to continue to deliver excellent care. It is also an important method of reducing professional burnout. In addition, nurses experiencing moral distress when involved in futile care, may also need emotional and spiritual support (Adolph et al., 2011). As part of this project’s report to nursing administration, recommendations for continuing education to augment end-of-life training for all nurses will be included. In a 2010 statement from the Institute of Medicine (IOM), in regards to the Future of Nursing: the “patient needs have become more complicated, and nurses need to attain requisite competencies to deliver high-quality care. These competencies include leadership, health policy, system improvement, research and evidence-based practice, and teamwork and collaboration, as well as competency in specific content areas” (IOM, 2010).

**Healthcare policy & ethics.** This project has broader implications for potential future policy implementation regarding the use of these standards in the ICU. An issue that is of growing concern, is the potential for futile care in the ICUs, and the role that palliative care plays in determining and reducing futile medical care. In the futility debate wherein some critics have
failed or refused to define medical futility, an important area of medicine that has been neglected is palliative care and the practitioner’s obligation to alleviate suffering, enhance wellbeing, and support the dignity of the patient at the end-of-life (Schneiderman & DeRidder, 2013).

Technologic advances result in our improved ability to increase favorable outcomes and survivability, but intensive care interventions often sustain life under circumstances that will not achieve an outcome that patients can meaningfully appreciate. Such treatments are often perceived to be futile by healthcare providers. In the United States intensive care accounts for 20% of all health costs and 1% of the gross national domestic product. Because approximately 20% of deaths in the United States occur during or shortly after stay in the ICU, critical care is scrutinized for the provision of potentially futile, resource-intensive treatments (Huynh et al., 2013).

There is a large amount of data that demonstrates that futile care translates into high costs at the end-of-life. Among the nearly 2.5 million annual deaths in the US, one third occur in the hospital and 17% involve care in the ICU. In-patient costs spent on terminal hospitalization that included ICU care can account for 80% of the total cost (Zilberberg & Shorr, 2012).

The major critical care societies, including the American Thoracic Society, Society for Critical Care Medicine, American College of Chest Physicians, American Association of Critical Care Nurses and the European Society for Intensive Care Medicine, are in the process of producing a new joint guideline on medical futility in the ICU. Focusing on the ethical justification for unilateral decisions to limit or withdraw life-prolonging medical interventions over patients’ and family objections, and the appropriate mechanism for reaching these
decisions, the new guidelines are expected to recommend a procedural framework for determining medical futility (Rubin & Courtwright, 2013).

Kaiser Permanente Hawaii does not, at this point, have a futility policy in place. Its Interregional Medical Ethics Committee (IRMEC) is currently reviewing the policies on non-beneficial and futile care from the various Kaiser regions. While there is no national policy on non-beneficial treatment, KP Southern California Regional Committee on Bioethics, approved a policy in 2013, "Responding to Requests for Non-Beneficial Treatment" (KPSCRCB, 2013). This was modeled on the policy recommendations from the California Medical Association. A similar policy had been utilized at the KP Southern California South Bay Medical Center for approximately four to five years, and a summary of their experience was published in the KP Journal (Nelson & Nazareth, 2013). A futility policy for KP Hawaii is a possibility in the near future. As this issue continues to enlarge, it will become a priority and results from the present project may become increasingly relevant.

**Research.** Palliative care is a relatively new specialty in the United States, and therefore it still lacks the high quality research, from which to draw conclusions (Weissman et al., 2010). This, along with the increased need for palliative care at the end-of-life, results in multiple opportunities for ongoing research efforts, both in the in-patient and out-patient settings. To provide health services that produce outcomes valued by patients, families and society, it is necessary to identify specific targets for measuring and enhancing care. Measurement of quality care is enhanced when specific processes of care are clearly linked to improved outcomes, because clinicians and healthcare systems can target these processes as an efficient way to improve quality of care. However, data supporting these links between specific palliative aspects
of critical care and outcomes are limited, and measurement remains challenging (Mularski et al., 2006; Weissman et al., 2010).

This project was designed to show differences in trends for a three month period prior to, and after, implementation. Despite the short span of time involved, this quality-improvement project was able to show that the early identification by ICU staff of key palliative care principles, was instrumental in increasing the necessary ICU family meetings in which Goals-of-Care and code status were established. Further research will be necessary utilizing an experimental design over a more extended period of time.

**Strategies for Sustaining Change**

Sustaining change is always a challenge. The concept of sustainability is defined as the degree to which an innovation continues to be used over time, after a diffusion program ends (Rogers, 2003). The absorptive capacity by staff for new knowledge, is a factor that affects adoption of an EBP. A learning organizational culture and proactive leadership that promotes knowledge sharing, are important components of the building of absorptive capacity for new knowledge. Support of the management and administrative team is also a part of the environment that is necessary for the facilitation of change process in organizations (Titler, 2010).

There is some evidence that although the project has been officially completed, the staff have retained the greater part of the process, and that a behavioral change has occurred. The post-interventional charting continues to reflect the identification of key components of the program. The RN staff have continued to utilize the Smart Phrase, and actively seek out the posted “cheat sheets” when they have questions regarding the palliative care criteria. The marketing tools remain in the ICU. The poster board was removed and stored for further use. It,
along with the Pre/Post Test tool will become part of the ongoing clinical competency fairs that are held on a periodic basis. As a result the staff have requested that the “cheat sheets” be compressed into a name tag sized laminated card that they can fix to their name badges.

**Plans for Dissemination**

Submission of this paper and the final defense occurred by the end of 2014. This final paper will also be divided into one or more reports for potential publication. The major divisions include: a) increased numbers of Goals-of-Care, code status and proactive ICU family meetings, with the implementation of a standardized, palliative care process in the ICU; b) the benefits of integration of basic, palliative care principles into the daily routine of ICU care, versus utilizing a specialty consultant palliative care team for all palliative care needs; c) decreased length of ICU and hospital stay with the integration of palliative care standards in the ICU; d) use of the Iowa Model of EBP to structure, implement and evaluate the integration of palliative care principles into the ICU; e) the use of the IPAL-ICU guidelines for the initiation of a palliative care initiative in the ICU; and f) the use of the Diffusion of Innovations framework to demonstrate adoption of the palliative care process in the ICU.

Users and stakeholders need to know that the efforts to improve care based on evidence have a positive impact on quality, therefore the results of this project were also shared with the entire staff (Titler, 2010). However, the level of understanding of measures, outcomes, and their implications, varied between the physicians and nurses. As a result, the topics were presented and explained to the two groups differently to maximize understanding of the final results. The nursing staff received a basic three-page explanation highlighting the major results. This was attached to the monthly electronic newsletter. The ICU physicians were offered a condensed
write up that included the requested statistical analysis. The Hawaii Permanente Medical Group (HPMG) physicians requested a poster submission to their Bi-annual HPMG Symposium that was held in November, 2014. A copy of the poster is included in Appendix F. The final data will be presented to the Quality Improvement Committee at a future meeting yet to be determined.

**Summary**

The integration of palliative care standards within the ICU at Kaiser Permanente Hawaii was successful in demonstrating that the basic principles can be integrated into the daily routine ICU care. It has been have shown that it is possible to utilize the numerous resources and support available, to structure and initiate a palliative care program in our ICU. We were able to successfully incorporate and put into operation, basic, core, palliative care measures, with a significant increase in early identification of Goals-of-Care, code status, and improved use of printed material. This led to a rise in the proactive ICU family meetings, and a resultant increase in changes in code status and treatment, after those ICU family meetings. The numbers of PAL consultations also rose accordingly. This heightened awareness of the need for early identification of key elements of the process, and the facilitation of the ICU family meetings through this intervention, coupled with the increase in staff competence and knowledge, were of both academic and clinical significance.

The results from both the family and nurse’s survey were generally positive. Despite the short span of time, the significant increase in knowledge and process-testing scores, along with the substantial rise in palliative care charting, gives credibility to the innovation-process framework that was utilized to produce the culture change.
The results from this project have a number of implications. The promotion of evidence-based practice, in which the basic palliative care principles are embedded within the traditional care of the ICU, can provide the opportunity to make necessary treatment changes by the ICU team itself, thereby sometimes attenuating the need for the PAL team. This allows the PAL team to be utilized appropriately in those cases which need specialized attention. The potential for cost savings from the implementation of these basic palliative care principles, is seen in the decrease in length of both ICU and hospital stay. These processes have the ability to be added to the existing EMR, to potentially assist in streamlining flow-sheet charting if and when administration deems this necessary. The implication for further staff education in end-of-life management along with the need for further research is evident. Finally, the increase in futile care at the end-of-life, lends support for the need to implement policies both on a local, and national level, to address this difficult issue.

There are multiple, ongoing challenges that impact the incorporation of palliative care standards within an ICU. However, the necessity of embedding and utilizing these principles in the daily routine ICU care, outweighs the tendency to utilize the palliative care team only. This paradigm shift will be necessary to improve the appropriate utilization of existing palliative care teams, improve resource allocation, decrease length of stay, and ultimately improve the end-of-life care for patients and families in the ICU.
References


Bradley, C. T., & Brasel, K. J. (2009). Developing guidelines that identify patients who would benefit from palliative care services in the surgical intensive care unit. *Critical Care Medicine, 37*(3), 946-950. Doi: 10.1097/CCM.0b013e3181968f68


10.1097/CCM.0b013e318287f289


http://dx.doi.org/10.1016/j.resuscitation.2012.01.004


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Appendices

Appendix A. NQF Preferred Practices for Hospice and Palliative Care

NATIONAL QUALITY FORUM PREFERRED PRACTICES FOR HOSPICE AND PALLIATIVE CARE (Weissman & Meier, 2008)

<table>
<thead>
<tr>
<th>Preferred Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide palliative and hospice care by an interdisciplinary team of skilled palliative care professionals, including, for example, physicians, nurses, social workers, pharmacists, spiritual care counselors, and others who collaborate with primary healthcare professional(s).</td>
</tr>
<tr>
<td>2. Provide access to palliative and hospice care that is responsive to the patient and family 24 hours per day, 7 days a week.</td>
</tr>
<tr>
<td>3. Provide continuing education to all health care professionals on the domains of palliative care and hospice care.</td>
</tr>
<tr>
<td>4. Provide adequate training and clinical support to assure that professional staff is confident in their ability to provide palliative care for patients.</td>
</tr>
<tr>
<td>5. Hospice care and specialized palliative care professionals should be appropriately trained, credentialed, and/or certified in their area of expertise.</td>
</tr>
<tr>
<td>6. Formulate, utilize, and regularly review a timely care plan based on a comprehensive interdisciplinary assessment of the values, preferences, goals, and needs of the patient and family and, to the extent that existing privacy laws permit, ensure that the plan is broadly disseminated, both internally and externally, to all professionals involved in the patient’s care.</td>
</tr>
<tr>
<td>7. Ensure that upon transfer between health care settings, there is timely and thorough communication of the patient’s goals, preferences, values, and clinical information so that continuity of care and seamless follow-up are assured.</td>
</tr>
<tr>
<td>8. Health care professionals should present hospice as an option to all patients and families when death within a year would not be surprising and should reintroduce the hospice option as the patient declines.</td>
</tr>
<tr>
<td>9. Patients and caregivers should be asked by palliative and hospice care programs to assess physicians’/health care professionals’ ability to discuss hospice as an option.</td>
</tr>
<tr>
<td>10. Enable patients to make informed decisions about their care by educating them on the process of their disease, prognosis, and the benefits and burdens of potential interventions.</td>
</tr>
<tr>
<td>11. Provide education and support to families and unlicensed caregivers based on the patient’s individualized care plan to assure safe and appropriate care for the patient.</td>
</tr>
<tr>
<td>12. Measure and document pain, dyspnea, constipation, and other symptoms using available standardized scales.</td>
</tr>
<tr>
<td>13. Assess and manage symptoms and side effects in a timely, safe, and effective manner to a level that is acceptable to the patient and family.</td>
</tr>
<tr>
<td>14. Measure and document anxiety, depression, delirium, behavioral disturbances, and other common psychological symptoms using available standardized scales.</td>
</tr>
<tr>
<td>15. Manage anxiety, depression, delirium, behavioral disturbances, and other common psychological symptoms in a timely, safe, and effective manner to a level that is acceptable to the patient and family.</td>
</tr>
<tr>
<td>16. Assess and manage the psychological reactions of patients and families (including stress, anticipatory grief, and coping) in a regular, ongoing fashion in order to address emotional and functional impairment and loss.</td>
</tr>
<tr>
<td>17. Develop and offer a grief and bereavement care plan to provide services to patients and families prior to and for at least 13 months after the death of the patient.</td>
</tr>
</tbody>
</table>
18. Conduct regular patient and family care conferences with physicians and other appropriate members of the interdisciplinary team to provide information, to discuss Goals-of-Care, disease prognosis, and advance care planning, and to offer support.

19. Develop and implement a comprehensive social care plan that addresses the social, practical, and legal needs of the patient and caregivers, including but not limited to relationships, communication, existing social and cultural networks, decision making, work and school settings, finances, sexuality/intimacy, caregiver availability/stress, and access to medicines and equipment.

20. Develop and document a plan based on an assessment of religious, spiritual, and existential concerns using a structured instrument, and integrate the information obtained from the assessment into the palliative care plan.

21. Provide information about the availability of spiritual care services, and make spiritual care available either through organizational spiritual care counseling or through the patient’s own clergy relationships.

22. Specialized palliative and hospice care teams should include spiritual care professionals appropriately trained and certified in palliative care.

23. Specialized palliative and hospice spiritual care professionals should build partnerships with community clergy and provide education and counseling related to end-of-life care.

24. Incorporate cultural assessment as a component of comprehensive palliative and hospice care assessment, including but not limited to locus of decision making, preferences regarding disclosure of information, truth-telling, and decision making, dietary preferences, language, family communication, desire for support measures, palliative therapies, complementary and alternative medicine, perspectives on death, suffering, and grieving, funeral/burial rituals.

25. Provide professional interpreter services and culturally sensitive materials in the patient’s and family’s preferred language.

26. Recognize and document the transition to the active dying phase, and communicate to the patient, family, and staff the expectation of imminent death.

27. Educate the family on a timely basis regarding the signs and symptoms of imminent death in an age appropriate, developmentally appropriate, and culturally appropriate manner.

28. As part of the ongoing care planning process, routinely ascertain and document patient and family wishes about the care setting for the site of death, and fulfill patient and family preferences when possible.

29. Provide adequate dosage of analgesics and sedatives as appropriate to achieve patient comfort during the active dying phase, and address concerns and fears about using narcotics and of analgesics hastening death.

30. Treat the body after death with respect according to the cultural and religious practices of the family and in accordance with local law.

31. Facilitate effective grieving by implementing in a timely manner a bereavement care plan after the patient’s death, when the family remains the focus of care.

32. Document the designated surrogate/decision maker in accordance with state law for every patient in primary, acute, and long-term care and in palliative and hospice care.

33. Document the patient/surrogate preferences for Goals-of-Care, treatment options, and setting of care at first assessment and at frequent intervals as conditions change.

34. Convert the patient treatment goals into medical orders, and ensure that the information is transferable and applicable across care settings, including long-term care, emergency medical services, and hospital care, through a program such as the Physician Orders for Life-Sustaining Treatment (POLST) program.

35. Make Advance Directives and surrogacy designations available across care settings, while protecting patient privacy and adherence to HIPAA regulations, for example, by using Internet-based registries or electronic personal health records.

36. Develop healthcare and community collaborations to promote advance care planning and the completion of Advance Directives for all individuals, for example, the Respecting Choices and Community Conversations on Compassionate Care programs.

37. Establish or have access to ethics committees or ethics consultation across care settings to address ethical conflicts at the end-of-life.

38. For minors with decision making capacity, document the child’s views and preferences for medical care, including assent for treatment, and give them appropriate weight in decision making. Make appropriate professional staff members available to both the child and the adult decision maker for consultation and intervention when the child’s wishes differ from those of the adult decision-maker.
## Appendix B. Pre- and Post-Education Test

<table>
<thead>
<tr>
<th>Integration of Palliative Care in ICU Staff Pre/Post-Test</th>
<th>Yes</th>
<th>No</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I know where to find patients advance directives in the EMR</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. DNR means “no treatment”</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Palliative care is the same as hospice</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Palliative care is only for terminally ill patients</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Palliative care involves comfort care only</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. A morphine drip and extubation is palliative care</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Palliative care takes care of the patient and the family</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. I currently screen my patients for palliative care needs</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. I currently provide palliative care to all my patients</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>10. I currently provide palliative care to my terminal patients only</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>11. I use the Goals of Care videos on the Kaiser Webinars</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>12. The ICU itself can be used as a palliative care tool</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>13. Nursing should discuss end of life issues with patients/families</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>14. Nursing should be involved in a multidisciplinary ICU/palliative care Meeting</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>15. Nursing should address advance directives, code status and surrogate designation</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>16. Nursing should chart on patient and family Goals of Care</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>17. Constipation medication is considered part of comfort care</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Appendix C. Process Evaluation Checklist

1. What are the 4 palliative care principles that are embedded in our ICU flow of care? Early ID of:
   ____ Advance directives
   ____ Code status
   ____ Surrogate
   ____ Goals of Care

2. ID the 6 different triggers in our ICU
   ____ Advanced cancer
   ____ Chronic and severe cognitive deficit
   ____ Consistency with/lack of Goals of Care
   ____ Conflict with Goals of Care
   ____ Multi organ system failure
   ____ ICU length of stay >7 days

3. When do we assess patients for the trigger criteria?
   ____ ID trigger on admission, transfer and daily

4. Once a patient has met the trigger criteria, what do you do?
   ____ Goals of Care video
   ____ SW consult
   ____ Notify physician
   ____ Bedside family ICU meeting

5. When do we generate a palliative care consultation?
   ____ No progress after our ICU family meeting, no change in pt condition

6. What do we give families when a PAL consult is made?
   ____ PAL Brochure
Family Satisfaction with Care in the Intensive Care Unit®
FS-ICU (24)
How are we doing?
Your opinions about your family member’s recent admission to the Intensive Care Unit (ICU)

Your family member was a patient in this ICU. You have been recorded as being the “next-of-kin”. The questions that follow ask YOU about your family member’s most recent ICU admission. We understand that there were probably many doctors and nurses and other staff involved in caring for your family member. We know that there may be exceptions but we are interested in your overall assessment of the quality of care we delivered. We understand that this was probably a very difficult time for you and your family members. We would appreciate you taking the time to provide us with your opinion. Please take a moment to tell us what we did well and what we can do to make our ICU better. Please be assured that all responses are confidential. The Doctors and Nurses who looked after your family member will not be able to identify your responses.

DEMOGRAPHICS:
Please complete the following to help us know a little about you and your relationship to the patient.

1. I am:  Male  Female

2. I am _________ years old

3. I am the patient’s:
   
   Wife  Husband  Partner
   
   Mother  Father  Sister  Brother
   
   Daughter  Son  Other (Please specify): __________

4. Before this most recent event, have you been involved as a family member of a patient in an ICU (Intensive Care Unit)?
   Yes  No

5. Do you live with the patient?  Yes  No

   If no, then on average how often do you see the patient?
   More than weekly  Weekly  Monthly  Yearly  Less than once a year

6. Where do you live?  In the city where the hospital is located  Out of town

FS-ICU(24) Version 11 August 15, 2000
How are we doing?
Your Opinions about your Family Member's ICU stay

PART 1: SATISFACTION WITH CARE

Please check one box that best reflects your views. If the question does not apply to your family member's stay then check the not applicable box (N/A).

**HOW DID WE TREAT YOUR FAMILY MEMBER (THE PATIENT)?**

<table>
<thead>
<tr>
<th>HOW DID WE TREAT YOUR FAMILY MEMBER (THE PATIENT)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern and Caring by ICU Staff:</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
</tr>
<tr>
<td>The courtesy, respect and compassion your family member was given.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Symptom Management:</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
</tr>
<tr>
<td>How well the ICU staff assessed and treated your family member's symptoms.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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</tbody>
</table>

**HOW DID WE TREAT YOU?**

<table>
<thead>
<tr>
<th>HOW DID WE TREAT YOU?</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consideration of your needs:</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
</tr>
<tr>
<td>How well the ICU staff showed an interest in your needs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Emotional support:</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
</tr>
<tr>
<td>How well the ICU staff provided emotional support.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Co-ordination of care:</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
</tr>
<tr>
<td>The teamwork of all the ICU staff who took care of your family member.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Concern and Caring by ICU</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

FS-ICU(24) Version 11 August 15, 2006
How are we doing?
Your Opinions about your Family Member’s ICU stay

Staff:
The courtesy, respect and compassion you were given

NURSES

9. Skill and Competence of ICU Nurses: How well the nurses cared for your family member.
   1  Excellent  2  Very Good  3  Good  4  Fair  5  Poor  6  N/A

10. Frequency of Communication With ICU Nurses: How often nurses communicated to you about your family member’s condition
    1  Excellent  2  Very Good  3  Good  4  Fair  5  Poor  6  N/A

PHYSICIANS (All Doctors, Including Residents)

11. Skill and Competence of ICU Doctors: How well doctors cared for your family member.
    1  Excellent  2  Very Good  3  Good  4  Fair  5  Poor  6  N/A

THE ICU

12. Atmosphere of ICU was?
    1  Excellent  2  Very Good  3  Good  4  Fair  5  Poor  6  N/A

THE WAITING ROOM

13. The Atmosphere in the ICU Waiting Room was?
    1  Excellent  2  Very Good  3  Good  4  Fair  5  Poor  6  N/A

14. Some people want everything done for their health problems while others do not want a lot done. How satisfied were you with the LEVEL or amount of health care your family member received in the ICU?
    1  Very Dissatisfied  2  Slightly Dissatisfied  3  Mostly Satisfied  4  Very Satisfied  5  Completely Satisfied

# How are we doing?

Your Opinions about your Family Member’s ICU stay

## PART 2: FAMILY SATISFACTION WITH DECISION-MAKING AROUND CARE OF CRITICALLY ILL PATIENTS

### INSTRUCTIONS FOR FAMILY OF CRITICALLY ILL PATIENTS

This part of the questionnaire is designed to measure how you feel about YOUR involvement in decisions related to your family member’s health care. In the Intensive Care Unit (ICU), your family member may have received care from different people. We would like you to think about all the care your family member received when you are answering the questions.

### PLEASE CHECK ONE BOX THAT BEST DESCRIBES YOUR FEELINGS

#### INFORMATION NEEDS

<table>
<thead>
<tr>
<th></th>
<th>Frequency of Communication With ICU Doctors:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How often doctors communicated to you about your family member’s condition</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
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<table>
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<tr>
<th></th>
<th>Ease of Getting Information:</th>
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<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Willingness of ICU staff to answer your questions</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
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<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>How well ICU staff provided you with explanations that you understood</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
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<table>
<thead>
<tr>
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<th>Honesty of Information:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The honesty of information provided to you about your family member’s condition</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>Completeness of Information:</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How well ICU staff informed you what was happening to your family member and why things were being done</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Consistency of Information:</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The consistency of information provided to you about your family member’s condition (Did you get a similar story from the doctor, nurse, etc.)</td>
<td>Excellent</td>
<td>Very Good</td>
<td>Good</td>
<td>Fair</td>
<td>Poor</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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How are we doing?
Your Opinions about your Family Member’s ICU stay

PROCESS OF MAKING DECISIONS:
During your family member’s stay in the ICU, many important decisions were made regarding the health care she or he received. From the following questions, pick one answer from each of the following set of ideas that best matches your views:

7. Did you feel included in the decision making process?
   1. I felt very excluded
   2. I felt somewhat excluded
   3. I felt neither included nor excluded from the decision making process
   4. I felt somewhat included
   5. I felt very included

8. Did you feel supported during the decision making process?
   1. I felt totally overwhelmed
   2. I felt slightly overwhelmed
   3. I felt neither overwhelmed nor supported
   4. I felt supported
   5. I felt very supported

9. Did you feel you had control over the care of your family member?
   1. I felt really out of control and that the health care system took over and dictated the care my family member received
   2. I felt somewhat out of control and that the health care system took over and dictated the care my family member received
   3. I felt neither in control or out of control
   4. I felt I had some control over the care my family member received
   5. I felt that I had good control over the care my family member received

10. When making decisions, did you have adequate time to have your concerns addressed and questions answered?
    1. I could have used more time
    2. I had adequate time

FS-ICU(24) Version 11 August 15, 2006
How are we doing?  
Your Opinions about your Family Member’s ICU stay

If your family member died during the ICU stay, please answer the following questions (11-13). If your family member did not die please skip to question 14.

11. Which of the following best describes your views:
   1. I felt my family member’s life was prolonged unnecessarily
   2. I felt my family member’s life was slightly prolonged unnecessarily
   3. I felt my family member’s life was neither prolonged nor shortened unnecessarily
   4. I felt my family member’s life was slightly shortened unnecessarily
   5. I felt my family member’s life was shortened unnecessarily

12. During the final hours of your family member’s life, which of the following best describes your views:
   1. I felt that he/she was very uncomfortable
   2. I felt that he/she was slightly uncomfortable
   3. I felt that he/she was mostly comfortable
   4. I felt that he/she was very comfortable
   5. I felt that he/she was totally comfortable

13. During the last few hours before your family member’s death, which of the following best describes your views:
   1. I felt very abandoned by the health care team
   2. I felt abandoned by the health care team
   3. I felt neither abandoned nor supported by the health care team
   4. I felt supported by the health care team
   5. I felt very supported by the health care team

14. Do you have any suggestions on how to make care provided in the ICU better?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

15. Do you have any comments on things we did well?

_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
16. Please add any comments or suggestions that you feel may be helpful to the staff of this hospital.

We would like to thank you very much for your participation and your opinions. Please either return your completed survey to the designated person in the ICU or put it in the stamped, self-addressed envelope and mail it to us as soon as possible.
Appendix E. EBP Guidelines for PAL Consultation in the ICU at Kaiser

Goal: To develop EBP guidelines for initiation of a palliative care consultation for patients who meet criteria in the ICU

Objective:
1. Improve utilization of existing Palliative Care Services
2. Improve identification of patient and family Goals-of-Care
3. Improve End-of-life care for patients and families in the ICU

Target Population: Adult patients admitted to the ICU, who meet trigger criteria

Primary Setting: 15 bed Adult ICU

Databases Used: PubMed, CINAH, Cochrane Databases

Years Included in Literature Search: 2006-2013

Mosby’s Level of Evidence Legend:
Level I Systematic Review
Level II Randomized Control Trial
Level III Quasi-experimental Design
Level IV Case-controlled, cohort, longitudinal Studies
Level V Correlation Studies
Level VI Descriptive Studies
Level VII Expert Opinion
Other Literature Review/Clinical Practice Guidelines (CPGs)

Guideline Author:
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Guideline Consultants:
Craig Nakatsuka MD
Carolyn Hubbard MD
Christopher Johnson MD
Lillian Umbarger MD
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<th>Source</th>
<th>Design; Sample Size; Methods</th>
<th>Outcomes/Findings</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
| Mosenthal, A., Weissman, D., et al. 2012 | Systematic Review | • The importance of integrating palliative care with intensive care is increasingly recognized  
• The characteristics of patients with surgical disease, practices, attitudes and interactions of different disciplines on the SICU team present distinctive issues for ICU palliative care integration and improvement | Level I |
| Nelson, J., Bassett, R., et al. 2010a | Systematic Review | • Palliative care is increasing seen as an essential component of comprehensive care for patients with critical illness, including those receiving aggressive intensive care treatments | Level I |
| Nelson, J., Curtis, J., et al. 2013b | Systematic Review | • Palliative care is a core component of comprehensive critical care for ICU patients regardless of prognosis or treatment goals  
• ICUs typically rely on palliative care consultants for assistance in managing those patients whose needs are perceived to be most complex or who remain refractory to initial intervention by the primary team | Level I |
| Lustbader, D., Pekmezaris, R., et al. 2011 | Observational comparison of two retrospective cohorts, those with palliative care consults (N=693) and those without (N=515) in the MICU | • Palliative care consultation reduced time until death during the entire hospitalization (p < 0.01)  
• Time from MICU admission until death was also reduced (p < 0.01).  
• The intervention group also contained a significantly higher percentage of patients with a do-not-resuscitate (DNR) designation at death than did the control group (p < 0.0001) | Level IV |
| Penrod, J., Pronovost, P., et al. 2012 | Prospective observational study to evaluate performance of care processes in the Voluntary Hospital | • Across three ICUs performance of key palliative care processes (other than pain assessment and management) was inconsistent and infrequent | Level IV |
Meeting standards of high-quality intensive care unit palliative care: Clinical performance and predictors

Critical Care Medicine. 40 (4), 1105-1112

Association Care and Communication Bundle for patients (N=518) and families (N=336) in three adult ICUs

• Available resources and strategies should be utilized for performance improvement in this area of high importance to patients, families and providers

Kahn, J.

2012

Quality-improvement in end-of-life critical care.

Seminars in Respiratory and Critical Care Medicine. 33 (4), 375-381.

Discussion

Mortality rates in patients admitted to ICUs average 10-20% in most US hospitals and overall approximately 200,000 patients die each year in or after admission to an ICU (Kahn 2012). These patients often die with distressing symptoms while receiving burdensome care. The integration of palliative with intensive care is increasingly recognized, as a growing body of evidence demonstrates the importance of end-of-life care in these units (Mosenthal et al., 2012; Nelson et al., 2010a).

Palliative care is medical care that enhances quality of life for patients living with serious advanced illness, by helping to align their treatment choices with their values. In the ICU, palliative care includes attention to symptom distress, communication about Goals-of-Care in relation to prognosis and patient preferences, transitional planning and family support (Lustbader et al., 2011; Mosenthal et al., 2012). Despite an existing palliative care team, there is often no structure or process in place in the ICU setting that determines when comfort care or end-of-life discussions should be initiated, and it is only when significant end-of-life issues arise, that they...
are consulted to assist with family and patient problems; usually in cases of suspected futile care (Nelson et al., 2013b; Penrod et al., 2012). The literature also shows evidence of a quality gap in which families queried about the dying process for relatives in the ICU, frequently report opportunities for improvement surrounding both communication and comfort for their loved ones (Kahn, 2012; Nelson et al., 2010a; Nelson et al., 2013b).

The standards for high quality ICU palliative care have been clearly defined by the National Consensus Project for Quality Palliative care and the NQF for palliative care across clinical settings, and operationalized by the Center to Advance Palliative Care (CAPC) with their Improving Palliative Care in the ICU (IPAL-ICU) Project (Penrod et al., 2012). The ICU presents a natural venue for efforts to improve the quality of end-of-life care. ICU clinicians are faced with dying patients on a regular basis. They have considerable experience in assessing patient comfort and withdrawing life-sustaining therapies, and as such, the ICU is increasingly recognized as a palliative care tool in itself (Kahn, 2012).

Conclusions

- Palliative care is a core component of comprehensive critical care for ICU patients regardless of prognosis or treatment goals.
- Available resources and effective strategies for performance improvement should be broadly and fully utilized.
<table>
<thead>
<tr>
<th>Source</th>
<th>Design; Sample Size; Methods</th>
<th>Outcomes/Findings</th>
<th>Level of Evidence</th>
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</thead>
<tbody>
<tr>
<td>Mosenthal, A., Weissman, D., et al. 2012</td>
<td>Systematic Review</td>
<td>Consultative and integrative and combined models can be used to improve ICU palliative care. Important components include attention to efficient work systems, practical tools and to attitudinal factors and the culture in the unit and institution. Physicians, nurses and other team members in surgery, critical care and palliative care should be engaged collaboratively to identify challenges and develop strategies.</td>
<td>Level I</td>
</tr>
<tr>
<td>Nelson, J., Bassett, R., et al. 2010a</td>
<td>Systematic Review</td>
<td>There are two main models for ICU palliative care integration—the consultative model which focuses on increasing the involvement and effectiveness of palliative care consultants in the care of ICU patients and families and the integrative model which seeks to embed palliative care principles and interventions in daily practice by the ICU team for all patients/families. Choosing an overall approach from among these models should be one of the earliest steps in planning an ICU-palliative care initiative.</td>
<td>Level I</td>
</tr>
<tr>
<td>Nelson, J., Curtis, J., et al. 2013b</td>
<td>Systematic Review</td>
<td>Palliative care is a core component of comprehensive critical care for ICU patients regardless of prognosis or treatment goals. ICUs typically rely on palliative care consultants for assistance in managing those patients whose needs are perceived to be most complex or who remain refractory to initial intervention by the primary team.</td>
<td>Level I</td>
</tr>
<tr>
<td>Smith, T., Coyne, P., &amp; Cassel, J. 2012</td>
<td>Expert Opinion</td>
<td>Consultative services are the easiest program to start and maintain. The actual role of the consult service will vary with local customs and culture. Excellent screening tools are available from CAPC website. Programs should be developed utilizing standards created from the National Consensus Project.</td>
<td>Level VII</td>
</tr>
<tr>
<td>Weissman, D., &amp; Meier, D. 2011</td>
<td>Clinical Practice Guideline</td>
<td>The most prevalent model of palliative care service delivered in acute care hospitals is the consultation service designed to provide specialty level care for difficult to manage symptoms, complex family dynamics and challenging care decisions regarding the use of life sustaining treatments.</td>
<td>Other</td>
</tr>
</tbody>
</table>
Discussion

Each ICU has an intrinsic and specific “culture” created by its history, structure, policies and processes of care, and by the attitudes and interactions of different disciplines on the critical care team (Mosenthal et al., 2012). There are two major models of palliative care that have been noted in the literature, and recommended by CAPC for integration into an ICU (Nelson et al., 2010a). They include the “consultative” model, which focuses on increasing the involvement and effectiveness of palliative care consultants in the care of ICU patients and families, and the “integrative” model which seeks to embed palliative care principles and interventions in daily practice by the ICU team for all patients/families. These models are not mutually exclusive, but rather represent the ends of a spectrum of approaches, and an ideal version is one that combines elements of the two. These models and variations of the two have been utilized successfully in both the medical ICU (MICU) and surgical ICU (SICU) setting (Mosenthal et al., 2012; Nelson et al., 2010a; Smith, Coyne & Cassel, 2012).

This then is one of the earliest steps in planning an intensive care unit-palliative care initiative (Nelson et al., 2010a). The actual role of the consult service varies with local customs and culture but the focus tends to be on issues such as goal setting, challenging care-decisions regarding the use of life-sustaining treatments, withdrawal of unwanted life prolonging therapies,
DNR designation, conflict resolution and transitional planning (Nelson et al., 2010a; Nelson et al, 2013; Smith et al., 2012; Weissman & Meier, 2011).

Conclusions

- The preliminary step in the formation of an ICU palliative care initiative is the development of a model
- The model should ideally be individualized to the unit and able to utilize components of both the consultative and integrative models
- Programs should be developed utilizing nationally created standards

Intervention

- The Kaiser ICU will be using the consultative model utilizing the existing palliative care team and a palliative care consultation will be initiated once need has been identified
### Screening/Triggers

<table>
<thead>
<tr>
<th>Source</th>
<th>Design; Sample Size; Methods</th>
<th>Outcomes/Findings</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
Integrating palliative care in the surgical and trauma intensive care unit: A report from the Improving Palliative Care in the Intensive Care Unit (IPAL-ICU) project advisory board and the Center to advance palliative care.  
Critical Care Medicine. 40 (4), 1199-1206 | Systematic Review | - Each ICU has an intrinsic and specific “culture” created by its history, structure, policies and processes of care and by the attitudes and interactions of different disciplines on the critical care team  
- Surgical critical illness often involves a systemic inflammatory response syndrome or sepsis associated with postoperative complications  
- Guidelines from a consensus panel of surgical palliative care experts set forth “trigger” criteria including:  
1. multiorgan system failure  
2. expected death in the SICU  
3. length of SICU stay > 1 month  
4. more than 3 admissions to the SICU during the index hospitalization  
- Triggers may be more successful in SICUs if the criteria are not applied generally but rather are specific to certain diseases  
- It is helpful to incorporate the triggers in a policy that mandates referral for patients meeting criteria  
- Triggers can be used to mandate one or more ICU palliative care processes  
- Suggest the use of published consensus criteria for screening of general hospitalized patients by the CAPC | Level I |
Choosing and using screening criteria for palliative care consultation in the ICU: A report for the Improving Palliative Care in the ICU (IPAL-ICU) advisory board  
Critical Care Medicine. 41 (10), 2318-2327 | Systematic Review | - The main goal is to identify patients at high risk of ICU or hospital death  
- There are various screening/trigger criteria reported in the literature  
- Criteria can focus on a particular disease process, and/or healthcare utilization  
- CAPC consensus panel developed checklists for use both on admission and daily  
- The optimal method for selection of screening criteria with be hospital or unit specific and dependent upon the identified need | Level I |
| Sihra, L., Harris, M., & O’Reardon, C. 2011  
Using the Improving Palliative Care in the ICU (IPAL-ICU) project to promote palliative care consultation  
Journal of Pain and Symptom Management. 42 (5), 672-675 | Descriptive study looking at the change in numbers of palliative care consultations in a MICU and SICU within a similar time frame the previous year (N=273) | - The IPAL-ICU framework and recommendations can be effectively used to increase the number of palliative care consults in the ICU  
- Their trigger criteria included:  
1. age 70 or older with 2 or more comorbidities  
2. stage IV cancer  
3. mechanical ventilation for 7 or more days  
4. exceeding expected length of stay by more than 50% | Level VI |
Comorbidities used for the age criteria included:
1. CHF
2. critical valve disease
3. coronary artery disease
4. prior MI
5. hypertension
6. chronic pulmonary disease
7. diabetes
8. cancer (except stage IV)
9. prior stroke
10. renal failure
11. liver disease
12. dementia (all types)

Weissman, D., & Meier, D. 2011
Identifying patients in need of a palliative care assessment in the hospital setting
Journal of Palliative Medicine 14 (1), 17-23

Clinical Practice Guideline
The use of specialty level palliative care professionals should be reserved for complex palliative care problems
Each hospital should develop a systematic approach to ensure that patients at high risk for unmet palliative needs are identified and served in a timely manner
Hospitals should develop a systematic approach to ensure that patients are screened for palliative care needs upon admission and daily
A checklist should be developed for the purposes of screening for palliative care needs both on admission and daily
Selection of indicators should be based on national standards, research findings and expert opinion from consensus panels

Discussion
The CAPC IPAL-ICU consensus panel determined that identifying patients with unmet palliative care needs is important both at that the time of admission, but also during the trajectory of the hospital course. Criteria for screening can be used as a mechanism for engaging palliative care consults in the ICU. It can be utilized to prompt proactive referral for palliative care consultation, reducing utilization of ICU resources without changing mortality, while increasing involvement of the palliative care specialist for patients and families in need (Nelson et al., 2013b).
A checklist utilizing the trigger criteria along with the determined denominator should be developed. Selection of the indicators for these checklists should be based on national standards, research findings, and expert opinions from the consensus panels (Weissman & Meier, 2011).

There are many identified triggers that various specialty ICU units have utilized that best meet their needs (Mosenthal et al., 2012). Triggers can be divided by three major categories; disease criteria, utilization criteria and other. Disease criteria can include conditions such as advanced cancer, severe cognitive dysfunction, and multi-system organ failure. Utilization criteria can include ICU length of stay and/or mechanical ventilation for designated numbers of days. The other category includes a lack of, and/or conflict with the Goals-of-Care and examples such as futility of care (Nelson et al., 2013b; Sihra et al., 2011; Weissman & Meier, 2011).

Conclusions

- Use of specific criteria to prompt proactive palliative care consultations can help reduce utilization of ICU resources without changing mortality, while increasing involvement of palliative care specialists for ICU patients/families in need.
- Palliative care consultation criteria that have been published by various institutions can be used as a starting point for the development of trigger criteria which should be tailored to a specific ICU.
- Implementation of criteria should be tracked by collection of process and outcome measures, with feedback and improvement efforts as needed.
**Intervention**

- The Kaiser ICU will be using the following triggers, which were agreed upon by consensus for their screening criteria
  - Advanced cancer
  - Chronic and severe cognitive dysfunction
  - Consistency with, or lack of, Goals-of-Care-this encompasses the patient’s wishes along with the question as to whether the current care is of benefit to the patient.
  - Conflict with Goals-of-Care
  - Multi organ system failure
  - ICU length of stay greater than 7 days

- These screening/trigger criteria will be used for both admission and daily screening until such need arises for separate screening tools.
## Care and Communication Bundle

<table>
<thead>
<tr>
<th>Source</th>
<th>Design; Sample Size; Methods</th>
<th>Outcomes/Findings</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
| Volandes, A., Paasche-Orlow, M., et al. 2013 | **RCT** Participants in the control arm (N=80) listened to a verbal narrative describing CPR and the likelihood of successful resuscitation. Participants in the intervention arm (N=70) listened to the identical narrative and viewed a 3-minute video depicting a patient on a ventilator and CPR being performed on a simulated patient. The primary outcome was participants’ preference for or against CPR measured immediately after exposure to either modality. Secondary outcomes were participants’ knowledge of CPR (score range of 0 to 4, with higher score indicating more knowledge) and comfort with video. | • Patients assigned to view a video were less likely to wish for attempted CPR compared with patients who only heard a verbal description of the intervention.  
• Patients who viewed the video also had more accurate knowledge about CPR  
• The vast majority were comfortable viewing the visual images.  
• Viewing a video may provide patients with details and information that are not necessarily communicated in verbal descriptions.  
• There is an acceptance of multimedia tools to empower patients and enhance decision making.  
• Patients with low health literacy may particularly benefit from the use of appropriately designed decision tools to explain medical procedures. | Level II |
| Volandes, A., Lehmann, L., et al. 2007 | **Quasi-experimental** before and after trial to examine whether a video of a patient with advanced dementia could shape the choices made by subjects about the type of care they would want in the future (N=120) | • Watching the video significantly changed preferences for care, transcending apparent differences in preferences associated with race/ethnicity and educational level.  
• This study suggests that using video in addition to improved verbal communication may lead to more informed advance care planning by enhancing the ability of patients to imagine a hypothetical health state. | Level III |
| Penrod, J., Pronovost, P., et al. | **Prospective observational study** | • The national standard domains of ICU palliative care quality include: patient care that | Level IV |

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<table>
<thead>
<tr>
<th>Year</th>
<th>Title</th>
<th>Journal</th>
<th>DOI</th>
<th>Abstract</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Meeting standards of high-quality intensive care unit palliative care: Clinical performance and predictors</td>
<td>Critical Care Medicine. 40 (4), 1105-1112</td>
<td></td>
<td>to evaluate performance of care processes in the Voluntary Hospital Association Care and Communication Bundle for patients (N=518) and families (N=336) in three adult ICUs maintains patients comfort, dignity and personhood; timely, effective and compassionate communication by clinicians with patients and families; alignment of medical decision making with patients values, goals and preferences; support for the family; and support for ICU clinicians • Based on the national standards, The Care and Communication Bundle has nine process measures of quality of ICU palliative care: 1. Identification of a medical decision maker 2. Determination of Advance Directive status 3. Investigation of cardiopulmonary resuscitation preference 4. Distribution of a family information leaflet 5. Interdisciplinary family meeting 6. Offer of social work support 7. Offer of spiritual support 8. Regular pain assessment 9. Appropriate pain management • The nine measures are time-triggered and focus on key evidence based processes • ICU palliative care process measures are grouped according to the ICU day by which the care process should be performed: day 1 (ID decision maker, Advance Directive, resuscitation preference, provide family information leaflet, assess and manage pain); day 3 (offer social worker and spiritual support); and day 5 (conduct an interdisciplinary family meeting) • Available resources and strategies should be utilized for performance improvement in this area of high importance to patients, families and providers</td>
</tr>
<tr>
<td>Sihra, L., Harris, M., &amp; O’Reardon, C.</td>
<td>Using the Improving Palliative Care in the ICU (IPAL-ICU) project to promote palliative care consultation</td>
<td>Journal of Pain and Symptom Management. 42 (5), 672-675</td>
<td></td>
<td>Descriptive study looking at the change in numbers of palliative care consultations in a MICU and SICU within a similar time frame the previous year (N=273) • The IPAL-ICU framework and recommendations can be effectively used to increase the number of palliative care consults in the ICU</td>
</tr>
<tr>
<td>Nelson, J., Mulkerin, C., et al.</td>
<td>Improving comfort and communication in the ICU: A practical new tool for palliative care performance measurement and feedback</td>
<td>Quality Safety and Health Care. 15 (4), 264-71</td>
<td></td>
<td>Clinical Practice Guideline • The new bundle of measures is a prototype for routine measurement of the quality of palliative care in the ICU • The bundle indicators fall within previously established domains of ICU palliative care quality • Palliative care processes that are important for high quality palliative care in ICU settings include identification of patient preferences and decision making surrogate, Advance Directive status, proactive communication between clinicians and patients/families on Goals-of-Care, social and spiritual support, and pain assessment and management, as documented in medical records</td>
</tr>
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</table>
Application is triggered by specified lengths of ICU stay.
- Day 1 (the day after ICU admission) should include identification of appropriate decision maker, Advance Directive status, CPR status, and information leaflet.
- ICU Day 3 should include social worker and spiritual support.
- ICU Day 5 should include interdisciplinary family meeting.

2010b
Defining standards for ICU palliative care: A brief review from the IPAL-ICU project
Center to Advance Palliative Care (CAPC)
IPAL-ICU
Clinical Practice
Guideline
- The National Consensus Project for Quality Palliative Care and the National Quality Forum have established standards for high quality palliative care across the spectrum of clinical settings in which seriously ill patients and their families receive treatment.
- The Voluntary Hospital’s Association’s Care and Communication Bundle which focuses on nine basic palliative care processes for the ICU is posted with detailed specifications on the National Quality Measure Clearinghouse Website of the Agency for Healthcare Research and Quality.
- Multiple workgroups and major organizations representing critical care professionals have also published recommendations related to palliative care or end-of-life care in the ICU.

Nelson, J., Brasel, K., et al.
2010c
Evaluation of ICU palliative care quality: A technical assistance monograph from the IPAL-ICU project
Center to Advance Palliative Care (CAPC)
IPAL-ICU
Clinical Practice
Guideline
- The Care and Communication Bundle developed as part of the national Transformation of the ICU (TICU) program evaluates nine evidence-based processes.
- To promote feasibility, the population targeted by the denominator for most of the measures is limited to patients in the ICU for at least five days. This is a practical marker of risk for poor outcome among critically ill patients.
- Individual care processes are triggered by specific days after admission to the ICU, with some processes to be performed by Day 1 and others by Day 3 or Day 5.
- This time-triggered strategy is designed to prompt timely performance of important processes for all ICU patients while limiting the burden of data collection to patients with prolonged ICU stays.

Discussion
The grouping of evidence-based processes as “bundles” of measures that are applied together for a fuller assessment and evaluation of the quality of care (Nelson et al., 2006b; Penrod et al., 2012), are designed to bring evidence-based literature into bedside management and create best
practice guidelines for specific disease processes common to ICU patients. This ensures uniform application of the best practices to all patients, and is meant to have a synergistic impact on outcomes. It greatly enhances the probability that all patients who should receive such care, do, and by examining the reasons why some patients did not receive components of the bundle, a built in performance-improvement process is in place (Winters & Dorman, 2006).

This strategy was employed by the Volunteer Hospital Association (VHA) in their “Transformation of the ICU” (TICU) program, a performance improvement initiative, to organize their quality measures into bundles. The resultant “Care and Communication Bundle” was developed as part of the TICU program to measure adult ICU palliative care quality (Nelson et al., 2010b). These resulting “bundle” guidelines and recommendations provide validated measures addressing multiple domains of ICU palliative care quality, and they are consistent with standards established by the National Consensus Project for Quality Palliative care, and the NQF for palliative care across clinical settings (Nelson et al., 2010b; Penrod et al., 2012; Truog et al., 2008).

The TICU Care and Communication Bundle is designed to assist in the development of measures, utilizing a process approach, for routine monitoring and performance feedback of the quality of palliative care across a broad range of ICUs. It also sets a base in which to create a set of standards or guidelines for a new palliative care program in the ICU. Within the bundle framework, are identified ICU palliative care processes that are associated with desirable outcomes, a list of indicators with corresponding quality measures, a measurement guide
containing specifications and definitions for the numerators and denominators of the measures, and a data tool (Nelson et al., 2006b). The IPAL-ICU project framework, guidelines and recommendations have been shown to be effective in increasing the number of palliative care consults in both the MICUs and SICUs (Sihra, Harris, & O'Reardon, 2011).

The bundle measure-set focuses on nine quality, palliative care processes for the ICU that address key domains of quality. The measures are triggered by time periods in the ICU, with emphasis on proactive, early performance of key processes (i.e. identify medical decision maker and resuscitation status before day 2 in the ICU) (Nelson et al., 2010b). To promote feasibility, the population targeted by the denominator for most of the measures is limited to patients in the ICU for at least five days. This is a practical marker of risk for poor outcome among critically ill patients. Individual care processes are triggered by specific days after admission to the ICU, with some processes to be performed by Day 1 and others by Day 3 or Day 5. This time-triggered strategy is designed to prompt timely performance of important processes for all ICU patients, while limiting the burden of data collection to patients with prolonged ICU stays (Nelson et al., 2006b; Nelson et al., 2010c). Obtaining code status, Advance Directives, surrogate and offer of family informational handout by day 1 of admission to an ICU is recommended. Social worker and spiritual support should be offered by day 3 and a proactive interdisciplinary family meeting offered by day 5 (Nelson et al., 2006b).

Specially created evidence-based videos are available for use on the Kaiser Education on Demand Webinar that is accessible on designated television channels in every patient room.
These videos discuss Advance Directives, code status and end-of-life decisions and are intended to be used by the nursing staff to recommend to patients and families and can assist in the initiation of a palliative care consult (Volandes et al., 2007; Volandes et al., 2013).

Conclusions

- A bundle of measures can provide direction in the creation of a set of standards or guidelines for a new palliative care program in the ICU.

- The bundle measure-set focuses on established, quality, palliative care processes for the ICU that address key domains of quality.

- The measures are triggered by time periods in the ICU, with emphasis on proactive, early performance of key processes.

- To promote feasibility, the population targeted by the denominator for most of the measures is limited to patients in the ICU for at least five days.

- Individual care processes are triggered by specific days after admission to the ICU, with some processes to be performed by Day 1 and others by Day 3 or Day 5.
Intervention

- On admission and/or transfer into the ICU, all patients will be screened utilizing the above trigger criteria to evaluate the need for a palliative care consultation.

- Should the patient meet criteria:
  - A call is made to the ICU social worker for a social worker consultation.
  - The patient and/or family are to be directed to the evidence-based videos to assist in the identification of Goals-of-Care, and charted in the appropriate section of Healthconnect.
  - The identification of Goals-of-Care, surrogate, Advance Directives and code status are to be mentioned/discussed, and charted, from Day 1 through Day 3, and charted in the appropriate section of Healthconnect.
  - Finalization of surrogate, Advance Directives by the SW by Day 3

- A proactive ICU family meeting with the ICU team is recommended by Day 3.
  - Palliative Care Informational Handout given to families and documented

- A proactive palliative care, multidisciplinary family meeting is recommended by Day 5 if need is identified on Day 3.

- See attached flow chart
### Outcomes and Metrics

<table>
<thead>
<tr>
<th>Source</th>
<th>Design; Sample Size; Methods</th>
<th>Outcomes/Findings</th>
<th>Level of Evidence</th>
</tr>
</thead>
</table>
| Mularski, R., Curtis, J., et al.  
2006  
Proposed quality measures for palliative care in the critically ill: A consensus from the Robert Wood Johnson Foundation Critical Care Workgroup  
Critical Care Medicine. 34 (11 suppl), S404-S411 | Clinical Practice Guidelines | • 18 proposed quality measures are organized into seven domains of quality palliative care for the critically ill  
• 14 of the proposed measures assess processes of care at the patient level  
• 4 measures explore structural aspects of critical care delivery | Other |
2006b  
Improving comfort and communication in the ICU: A practical new tool for palliative care performance measurement and feedback  
Quality Safety and Health Care. 15 (4), 264-71 | Clinical Practice Guideline | • The framework mandated by the NQF mandates that measures of healthcare quality not only address important practice issues and meet scientific standards, but are also feasible for the intended purpose of quality measurement  
• It is to develop measures for routine monitoring and performance feedback of the quality of palliative care across a broad range of ICUs  
• Identified ICU palliative care processes that are associated with desirable outcomes  
• Bundle measures are stratified by length of stay triggers at Day 1, 3, and 5  
• Performance can be measured concurrently/prospectively (on trigger day) or on the next day; alternatively and ICU can review medical records retrospectively on a subsequent day.  
• Using the length of stay > 5 days to define the denominator patient group, is a strategy to minimize the measurement burden and target patients who are most likely to benefit from these measures | Other |
| Nelson, J., Brasel, K., et al.  
2010c  
Evaluation of ICU palliative care quality: A technical assistance monograph from the IPAL-ICU project  
Center to Advance Palliative Care (CAPC) IPAL-ICU | Clinical Practice Guideline | • Domains of quality are made operational as specific measures, each with a numerator and a denominator.  
• The denominator defines the target population i.e., all patients admitted to the ICU during a certain time period, or a subset or ICU patients with selected characteristics.  
• For evaluation of palliative care, subgroups can be defined to select patients at greatest risk of hospital mortality or significant impairment of function or cognition.  
• The denominator for some measures may be more appropriately expressed in terms of a time period of patient care  
• The numerator represents the care process (or outcome or structure) | Other |
- Selection of numerators for quality measures, the main considerations are: the strength of the scientific evidence supporting the measure, the importance of the practice to the key stakeholders and the feasibility of collecting the measure given the resources.
- Care processes are appropriate indicators if correlated with desired outcomes. Some ICU palliative care processes are solidly supported. These include: the link between proactive meetings between clinicians and ICU families with favorable outcomes including family satisfaction, consensus about care goals, family psychological well-being and efficient utilization of critical care resources.
- Frequent assessment and effective management of pain, which are mandated by TJC on the basis of existing evidence and fundamental compassionate principles are appropriate for evaluation in a quality-improvement initiative.
- Potential sources of data for palliative care quality measurement include: Medical records, Administrative databases, Direct interviews of patients, families or clinicians.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Clinical Practice Guidelines</th>
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</thead>
<tbody>
<tr>
<td>Weissman, D., &amp; Meier, D.</td>
<td>CAPC developed recommendations for key operational features for hospital programs.</td>
</tr>
<tr>
<td>2008</td>
<td>Twenty two recommendations are grouped into 12 domains and include “must have” and “should have” features.</td>
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<tr>
<td></td>
<td>Key outcome measures can be divided into four domains</td>
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<td></td>
<td>1. Operational metrics</td>
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<td>2. Clinical metrics</td>
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<td>3. Customer metrics</td>
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<td>4. Financial metrics</td>
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<tr>
<td>Weissman, D., Meier, D., &amp; Spragens, L.</td>
<td>Other</td>
</tr>
<tr>
<td>2008</td>
<td>Center to Advance Palliative Care consultation service metrics: Consensus recommendations</td>
</tr>
<tr>
<td></td>
<td>Other</td>
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<td></td>
<td>Clinical Practice Guidelines</td>
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<tr>
<td></td>
<td>Operational metrics describe the characteristics of patients seen on the consultation service.</td>
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<td></td>
<td>Examples include: date of admission, date of consult, numbers of consults, diagnosis, age, gender, referring</td>
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<td></td>
<td>physician/service, ICU length of stay, hospital length of stay, disposition</td>
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<tr>
<td></td>
<td>Clinical metric examples include: symptom control scores, psychosocial assessment scores</td>
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<td></td>
<td>Customer metric examples include; satisfaction survey data from patient, family and/or referring physician</td>
</tr>
<tr>
<td></td>
<td>Financial metric examples include: daily pre and post hospital cost, net loss/gain for in-patient deaths, case</td>
</tr>
<tr>
<td></td>
<td>mix index</td>
</tr>
<tr>
<td>Weissman, D. E., Morrison, R. S., &amp; Meier, D. E.</td>
<td>Other</td>
</tr>
<tr>
<td>2010</td>
<td>Center to advance palliative care clinical care and customer</td>
</tr>
<tr>
<td></td>
<td>Clinical Practice Guidelines</td>
</tr>
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<td></td>
<td>In the realm of clinical quality, measures can include structure, process and outcome measures</td>
</tr>
<tr>
<td></td>
<td>Process and outcome measures are the major palliative care structural metrics</td>
</tr>
</tbody>
</table>

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| Process measures refer to interactions between the patient and healthcare provider i.e., charting a daily pain assessment |
| Outcome measures refer to a patient's subsequent health status i.e., a reduction in symptom distress |
| For clinical metrics there are four key measurement domains that represent the core of in-patient palliative care clinical services. They include: |
| 1. Symptom assessment and management on initial encounter and daily (pain, nausea, delirium, dyspnea, constipation, anxiety and/or depression, fatigue). The process measures are the frequency of documentation and missing elements within documentation. The outcome measures are the symptom scores and changes in symptom scores over time |
| 2. Documentation of Goals-of-Care: diagnosis, prognosis and treatment options reviewed; Goals-of-Care identified; preferred setting of care identified; immediate and short term plans to meet identified goals; advance care planning which includes if a written document exists, if it is reviewed and placed in the chart along with notation of any patient defined instructions, if patient desires to complete Advance Directive and plans for completion, preference for surrogate, patient declines to pursue Advance Directive and reason. The process measures are frequency of documentation and missing elements within documentation |
| 3. Documentation of support to patient and caregivers which includes: identification of primary patient caregiver; identification of patient and caregiver needs; identification of met needs and/or strategies to initiate to address unmet needs, follow up actions are defined and documented (social worker, chaplain or psychology consulted). The process measures are frequency of documentation and missing elements of documentation |
| 4. Documentation of transition management which is documentation of communication across care sites such as hospital to hospice. The process measures are frequency of documentation, missing elements of documentation, plan is documented for palliative care follow up across settings and Advance Directives follow the patient across care settings. |
Discussion

There are multiple guidelines from various national and professional organizations and programs including the CAPC-IPAL-ICU, Robert Wood Johnson Foundation Critical Care Workgroup, other Critical Care professional groups, and the TICU performance improvement project of the VHA Inc. that have recommended sets of preferred practices all based on the NQF Framework for Preferred Practices for Palliative and Hospice Care Quality (Mularski et al., 2006; Nelson et al., 2006b; Nelson et al., 2010c).

Quality of care can be evaluated on the basis of structure, process or outcome. Process measures refer to interactions between the patient and healthcare institution or provider, such as charting a daily pain assessment. Outcome measures refer to a patients’ subsequent health status, such as a reduction in symptom distress. The four domains for key outcome measures include operational, clinical, customer satisfaction and financial metrics. Process and outcome measures are the major palliative care structural metrics (Weissman & Meier, 2008; Weissman, Meier & Spragens, 2008; Weissman, Morrison & Meier, 2010).

The TICU Care and Communication Bundle is designed to assist in the development of measures, utilizing a process approach, for routine monitoring and performance feedback of the quality of palliative care across a broad range of ICUs. It also sets a base in which to create a set of standards or guidelines for a new palliative care program in the ICU (Nelson et al., 2006b). Within the bundle framework, domains of quality are made operational as specific measures. ICU palliative care processes that are associated with desirable outcomes are identified. Included
are a list of indicators with corresponding quality measures, and a measurement guide containing specifications and definitions for the numerators and denominators of each measure (Nelson et al., 2006b; Nelson et al., 2010c).

The Robert Wood Johnson Foundation Critical Care Workgroup published a concise, easy to read guide that proposed fourteen measures to assess processes of care at the patient level and then four measures to explore structural aspects of critical care delivery. In each of their measures, they define the indicator; give examples of the numerator and denominator; the unit of analysis; intended sample; exclusions; data source and collection method and; the primary source for measure (Mularski et al., 2006).

Conclusions

- Process measures refer to interactions between the patient and healthcare institution or provider, such as charting a daily pain assessment. Outcome measures refer to a patients’ subsequent health status.
- There are four domains of key outcome measures which include; operational, clinical, customer and financial metrics.
- Within the bundle framework, are identified ICU palliative care processes that are associated with desirable outcomes, a list of indicators with corresponding quality measures, a measurement guide containing specifications and definitions for the numerators and denominators of the measures.
**Intervention**

- Collection of data for 3 months prior to and after intervention to compare outcomes from a sample of the population

**Operational Metrics**
- Patient ID number
- Age, gender, ethnicity
- Admitting Diagnosis
- Co-morbidities/disease distribution
- APACHE III score
- Date of hospital admission
- Date of ICU admission
- Date of palliative care consultation
- Date of ICU discharge
- Discharge from ICU distribution
- Date of hospital discharge
- Disposition after ICU
- Final disposition

**Clinical Metrics**
- Symptom Assessment and Management of pain
- Identification of need for surrogate, Advance Directives, and code status by discussion Day 1-3
- Finalization of surrogate, and Advance Directives by Social Worker and code status by ICU physician by Day 3
- Proactive ICU family meeting by Day 3
- Proactive interdisciplinary palliative care family meeting by Day 5
- Change in treatment after ICU family meeting or palliative care family meeting

**Customer Metrics**
- Social Worker support offered Day 1-3
- Family information handout on palliative care offered Day 1-3
- Spiritual support offered Day 1
- Family survey

**Financial Metrics**
- Length of stay in ICU, hospital
- Numbers of palliative care consultations
- Use of Goals-of-Care videos on Kaiser Education on Demand
- Staff survey
Impact of Proactive ICU & PAL Family Meetings on the Early Identification of Goals of Care & Code Status

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Appendix F. Poster Submission for HPMG Symposium Nov. 2014