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Benefits of Palliative Care in the Intensive Care Unit

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Benefits of Palliative Care in the Intensive Care Unit

A Scholarly Inquiry Paper
Submitted to the Faculty
of the Department of Nursing
College of Nursing and Health Sciences
of Winona State University

by
Stephen M. Swenson

In Partial Fulfillment of the Requirements
for the Degree of
Master of Science

June 29th, 2020



COMPLETED SCHOLARLY INQUIRY PAPER APPROVAL FORM

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RE: FACULTY ENDORSEMENT and FINAL REVIEW COMMITTEE

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Abstract

The use of palliative care is often overlooked until the terminal phase of serious illness when life-prolonging interventions are deemed futile and death is considered imminent. Alongside the well regarded Clinical Practice Guidelines for Quality Palliative Care (National Coalition for Hospice and Palliative Care, 2018), numerous critical care societies including the American Association of Critical-Care Nurses (Medina & Puntillo, 2006), American College of Critical Care Medicine (Davidson et al., 2008), American College of Chest Physicians (Selecky et al., 2005), American College of Surgeons (2017), and the American Thoracic Society (Lanken et al., 2007) have each published individual policies highlighting the importance Palliative Care medicine in the intensive care unit. The most recent joint policy statement from the Choosing Wisely (2014) task force comprised of the aforementioned critical care societies that addresses palliative care recommends regular engagement in conversations regarding comfort alternatives with families and patients at a high risk of death.

Based on the outcomes of a systematic literature review and review of multiple clinical policy guidelines, the recommendation is to consider a piloted evidence-based practice project that explores the timely assessment of critically ill patients with the use of a palliative care bundled approach to screening patients meeting criteria for palliative care services. Providing timely and consistent palliative care services has been found to provide several benefits including improved symptom management, increased quality of life, increased patient and family satisfaction, decreased Intensive Care Unit and hospital

length of stay, a decrease in downstream hospital costs, and readmission rates (Braus et al., 2017; Ciemins, Blum, Nunley, Lasher, & Newman, 2007; Kupensky, Hileman, Emerick, & Chance, 2015; Weissman & Meier, 2011)

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Chapter I

Introduction

Introduction to the Inquiry

The introduction to this scholarly inquiry paper will include the background and rationale for the inquiry, the purpose of the inquiry, the research question guiding the inquiry, and the chosen method for review and evaluation of the literature.

Symptom burden including dyspnea, pain, anxiety, and depression as well as significant comorbidities can lead to significant burden and decreased quality of life in seriously ill patients. (Desbiens et al., 1999). Exacerbation of the previously mentioned symptoms can be seen in critically ill patients who are admitted to the intensive care unit (ICU) which can subsequently lead to further complications. (Desbiens et al., 1999). Symptom management can be managed by specialty services including Palliative Care teams who solely focus on symptoms burden and management. Palliative care has not been openly recognized in the past given the association with hospice care in addition to critical care physicians lacking formal education and training aimed at the services Palliative Care has to offer. By providing palliative care services upon initial admission to the ICU, healthcare providers, patients and families can have quality conversations and integration of palliative care services to aid in the development of a holistic approach of care that mitigates the unintended limitations of aggressive life-sustaining interventions such as unrelieved pain or other symptoms including dyspnea, nausea, anxiety, and depression; adequate communication and goal setting, aligned goals of care meeting the patients' wishes all while decreasing provider burnout and moral suffering (Trough et al., 2008; White, Roczen, Coyne, & Wiencek, 2014).

Despite the vast number of major stakeholders (American College of Surgeons, 2017; Davidson et al., 2008; Joint Commission, 2016; Lancken et al., 2007; Medina & Puntillo, 2006; National Coalition for Hospice and Palliative Care, 2018; Selecky et al., 2005) such as surgeons, critical care intensivists, critical care nurses, and credentialing bodies who endorse the integration of palliative care from time of hospital admission, an opportunity may exist to provide greater consideration for the overall well-being and symptom management of patients.

The main concept of interest for this paper is to investigate the under-utilization of palliative care services in the intensive care unit and the effect that these services have managing symptoms that tend to be overlooked in this setting. Until a better understanding among health care professionals regarding the role that palliative care plays in symptom management is appreciated, there will continue to be an immediate need to examine how palliative care services can provide patients with an improvement in their reported levels of symptoms managed such as pain, dyspnea, nausea, constipation, diarrhea, anxiety, depression, and grief which in turn can affect their quality of life. The purpose of this inquiry is to critically review the benefits derived from such palliative care services in the intensive care unit.

Background and Rationale for the Inquiry

Palliative care can improve symptom management which can in turn improve quality of life for patients suffering from life-threatening illnesses (World Health Organization, 2020). In the absence of adequate or timely palliative care, patient symptoms can be inconsistently undermanaged leading to reduced quality of life. Symptom management via palliative care can provide prevention and relief of suffering

via prompt identification and assessment of pain and other physical, psychosocial, and spiritual problems that can affect a patient's quality of life (World Health Organization, 2020). Without proper intervention, symptoms can worsen and manifest into symptoms of depression, anxiety, insomnia, anorexia, nausea, constipation, fatigue, dyspnea, and pain. According to the National Consensus Project's Clinical Practice Guidelines for Quality Palliative Care [NCP Guidelines] and published by the National Coalition for Hospice and Palliative Care (2018), it is crucial to focus attention on patients' quality of life, goals of care, and coordinate their medical care in alignment with these goals, ensuring resources for symptom management, guidance with advanced care planning, providing a partnership with critically ill patients and their families to create a plan of care, ensuring that patient advocacy is maintained, and providing others with education regarding the holistic care approach regardless of the care setting.

Palliative care has evolved out of the model of modern hospice nursing which began in England due to a movement created by Dame Cicely Saunders in the 1960's. Dr. Saunders' holistic end-of-life care approach of promoting compassionate care for the dying to eventually inspired the Dean of Yale's School of Nursing, Dr. Florence Wald. There, Dr. Wald focused on expanding a nursing curriculum emphasizing pain and symptom management and communication skills required for providing care to the dying and terminally ill. The holistic approach to symptom management and congruity of patient goals that began in the foundations of hospice care continue to be crucial to the delivery of palliative care for patients with chronic and serious illnesses (Dahlin & Coyne, 2016).

Communication about comfort and end of life planning between patients and medical providers have continued to provide challenges, long after the origins of palliative care. Outcomes from the Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment (SUPPORT) (Connors et al., 1995) found that not only was there a crucial breakdown in communication between patients and health care providers in regards to end-of-life preferences such as code status, but that following an intervention of enhanced communication and education between a specially trained nurse, patient, family, physician, and hospital staff, patients continued to see no improvement in patient-provider communication, incidence or timing of written code status orders, provider's awareness of their patients' preference not to be resuscitated, length of stay in the intensive care unit, number of days mechanically ventilated, number of days comatose prior to death, or patient reported levels of pain. Connors et al., (1995) recommended increasing individual and societal dedication, and further preemptive and cogent measures to improve the experience of critically ill and dying patients. It was shortly following the dissemination of these findings, and out of the foundations of hospice, that programs resembling palliative care began to develop in academic hospitals across the United States.

Barriers that continue to hinder the incorporation of palliative care within the critical care setting include unrealistic expectations for critical care therapies on the part of patients, families, and clinicians, the misperception of palliative care and critical care as mutually exclusive or successive rather than complementary and coexisting systems, conflation of palliative care with end-of-life care or hospice care, concern that incorporation of palliative care will hasten death, insufficient training of clinicians in the

necessary skills to provide high-quality palliative care, competing demands on intensive care unit provider effort without adequate reward for palliative care quality, and a failure to apply effective approaches for system or culture changes that increase the utilization of palliative care in the intensive care unit (Kupensky et al., 2015; Hua, Ma, Morrison, Li, & Wunsch, 2018; Mosenthal et al., 2012). However, several findings continue to suggest that palliative care offers a direct improvement in the quality of life to a patient or their family with both direct and downstream cost savings implications such as decreased length of stay and increase in discharge to an appropriate level of care (Brumley et al., 2007; Ciemins et al., 2007; Gade et al., 2008; Grant, 2016).

Purpose of the Inquiry

The purpose of this paper is to highlight the proposed bundled approach to initiating palliative care and the assessment of patients to enroll in palliative care. Given the consensus of major governing bodies in the areas of Critical Care medicine, nursing, and palliative care, it is imperative to address the symptom burden and quality of life issues patients with serious illness are at risk of developing if left unmanaged or undermanaged. When health care providers become preoccupied assessing clinical outcomes, treating bodily systems, and conferring with subspecialty services, it can easily be forgotten that patients still require care from a holistic approach including the biological, social, physical, psychological and spiritual needs of the patient. It is prudent that patients receive compassionate and holistic care during all times of life but specifically while in the intensive care unit.

Research Question Guiding Purpose of the Inquiry

The following clinical question has been chosen for further consideration: What is the benefit of initiating palliative care for patients admitted to the intensive care unit? Identifying the benefits that palliative care services may have on patients with chronic and/or critical illness could assist in the development of new policies and protocols encouraging early initiation of palliative care that would potentially reduce patient suffering and increase patient and family member autonomy

Method Used for the Inquiry

An integrative literature review of the relevant literature was conducted for this inquiry. Conceptualization of the integrative review occurs in six phases; formulating a problem to guide the search, multiple searches of relevant literature, collecting relevant articles (data), critical appraisal of the articles attained, synthesis of the relevant literature, and a clear and concise presentation of the preceding literature review (Rucker, 2016). A thorough review of the literature was conducted from 2012 to the present.

Summary

All critically ill patients admitted to the intensive care unit and their families have needs that can be best addressed with palliative care services. Palliative care services in the intensive care unit setting continue to be an underutilized service despite evidence-based research and clinical guideline recommendations. Few studies regarding the effect that palliative care has on symptom burden, inpatient length of stay, and patient or family reports of satisfaction regarding clarity of care and communication between patients, surrogates, and their providers are available in the current literature. This scholarly

inquiry paper was conducted to investigate current practices regarding the integration of palliative care within the intensive care setting.

Chapter II

Literature Review

Introduction

The following chapter presents an overview of the database search process, a synthesis of the literature including emerging themes, and a synthesis of the literature review. The number of articles listed, reviewed, and utilized throughout the literature search are found in Appendix A.

Database Extraction

Following a scholarly review of the current literature (Appendix A), common themes emerged regarding the need to improve the timely utilization of palliative care in the intensive care setting where patients may experience a decrease in quality of life, an increase in overall symptom burden, and create a larger system burden by the increased cost of services. The following high-quality studies included three randomized control trials and six quasi-experimental studies of varying design and were found utilizing the scholarly databases CINAHL Complete and PubMed.

The database process utilized for this scholarly inquiry paper was limited to peer-reviewed English language journal articles available as full text and published between January 1, 1999 and June 1, 2020. This large timeframe was utilized to capture the totality of research available and some of the early emerging studies of palliative care in critically ill. Searches included the following key terms palliative care, inpatient palliative care, inpatient palliative care consultation, inpatient palliative care team, Palliative Medicine consultation, intensive care, seriously ill, quality of life, family support, symptom management, symptom burden, evidence based, length of stay, health

care costs, economic impact, systematic review, randomized control trial, clinical practice guidelines.

First, results of the searches were scanned to assess the titles for interest as it pertains to this inquiry. Then abstracts of the articles deemed pertinent were assessed for further merit. Articles that were found to be valid and showing clinical outcomes of interest to this inquiry's main question, conducted in a methodologically sound way were then selected. Articles were excluded if they did not provide adequate statistical evidence or generalizability to broader populations due to the evidence-based practice nature of this inquiry. The following review is summarized for reference in Appendix B.

The clinical practice guideline chosen to steer future evidence-based practice change that may result from this inquiry were the NCP Guidelines (2018). An appraisal of the practice guidelines was completed using the AGREE II Instrument (AGREE Next Steps Consortium, 2017) and summarized in Appendix C.

A systematic report that focused on the facilitators and barriers to integrating palliative care with surgical intensive care that was authored by the Improving Palliative Care in the Intensive Care Unit [IPAL-ICU] Project Advisory Board and the Center to Advance Palliative Care [CAPC] (Mosenthal et al., 2012) was also utilized to steer future evidence-based practice initiatives. An appraisal of the systematic report was completed and summarized in Appendix D.

Synthesis of Literature

This section provides an analysis and synthesis of the literature reviewed for this scholarly review paper. The nine articles reviewed all shared themes that fall under one major concept, palliative care for the critically ill adult. These underlying themes include

the presence of symptom burden, critical care stewardship, mortality, inpatient length of stay, and patient or family reports of satisfaction regarding clarity of care and communication between patients, surrogates, and their providers.

An appropriate level of evidence for each study was drawn from the use of an effectiveness rating scheme developed by Ackley, Swan, Ladwig, and Tucker (2008). Each study and the corresponding study purpose, sample, setting, study design, variable(s) measured, major results and implications, and level of evidence are summarized in the Literature Review Table located in Appendix B.

Symptom burden. Desbians et al. (1999) attributed disease category, more comorbidities, an increase in dependencies in activities of daily living prior to illness, and a decrease in patient quality of life to patients that experience an increased symptom burden. Proxies were substituted for patients who were comatose, intubated, or who experienced other disabilities to communicate. Statistically significant poor quality of life scores were reported for these patients ($p < .001$) (Desbians et al., 1999). Dyspnea and pain were commonly reported among these patients, further highlighting the need for adequate symptom management in the critically ill.

Since it is likely that seriously ill patients may already have co-morbid conditions, and have a higher likelihood of becoming unstable possibly warranting transfer to the intensive care unit shortly following hospital admission, it is important to incorporate the facilitation of the NCP Guidelines (2018) Domain 1: Structure and Processes of Care, Guideline 1.4 of the Comprehensive palliative care Assessment, Criteria: 1.4.1 – “The interdisciplinary team has defined processes for identifying patients with palliative care needs specific to the population(s) served” (p. 5).

Ciemins et al. (2007) found palliative care services correlated to evidence of reduced scores of pain from 7.9 to 1.1 (86% reduction), dyspnea from 2.4 to .86 (64% reduction), and secretion from 2.3 to 0.3 (87% reduction) when compared to a cohort receiving usual care. Improvement in the symptom management of pain, constipation, nausea, vomiting, anxiety, and agitation were reported following the initiation of a Palliative Medicine intervention by Kupensky et al. (2015) following a retrospective correlational study undertaken at a trauma level I intensive care unit . It is important to address the reduction of symptom burden for patients who are unable to self-report pain or other symptoms due to neurological injury, chemical sedation, metabolic disturbances, severity of illness, or organ dysfunction as vital signs and proxy reports may not be reliable indicators of patient pain levels (Wienczek, 2016).

This effect, however, was not observed by either of the literature review to include random controlled studies of inpatient intensive care units. Gade et al. (2008) found no differences in symptom control between a large multicenter randomized cohort of patients who received treatment from an inpatient palliative consultative service. The authors' (Gade et al., 2008) state that this could be due to low patient symptom reports at baseline, short length of hospital stay overall causing a narrow window to treat, and the possibility that enrollees of the palliative service were relatively newer to their disease progression given their long observed survival times.

Stewardship of care and resources. The perceived need for an increase in access to palliative care services arises from patients reporting the use of unwanted treatments received towards the end of life, and their reporting of inadequate support systems in place to help them navigate a complex health care system and the varying treatment

options available due to the assistance of modern technology (Brumley et al., 2007; Gade et al., 2008). These services are paramount in the management of specialty care for patients at risk of unintended suffering. Without the proper tools and resources, patients could be at risk of unwanted and painful treatments that in hindsight could be deemed futile.

Timelier conversations regarding advance directive discussions and code status updates are important for patients who are critically ill. These discussions were more likely to occur and be documented for patients with a palliative service consultation than those without (91.1% vs 77.8%; $p < .001$) (Gade et al., 2008) (93.1% vs 6.9% for advance directive discussion, and 84.5% vs 15.5% for code status update or change; $p < .001$ for both groups) (Kupensky et al., 2015). This is a fleeting moment in a seriously ill patient's intensive care admission where health care professionals might be missing out on an important opportunity to address patient wellbeing and quality of life. Kupensky et al. (2015) note that while their study found improvements on historical data regarding the average time to consultation from admission to the intensive care unit, less than half of all eligible patients (48%) received a Palliative Care team consultation and the average time to receive a consultation was three days due to the minimal amount of consultations initiated by emergency medicine or those initiated upon admission to the Intensive Care Unit. The authors (Kupensky et al., 2015) attribute this underutilization of palliative care in the intensive care unit to a lack of provider knowledge of the role of palliative care, provider misconceptions that palliative care is not mutually exclusive with comfort care, or that the provider lacked the time to consider a Palliative Care team consultation.

Unwanted treatments also bring into question the proper use of resources needed to protect the utilitarian principal. Are efforts that are perceived as futile by the patient and their family beneficial to the patient long-term? From a cost analysis perspective, the answer is no. Three of the articles reviewed found a reduced overall hospital cost associated with readmission, length of stay, and the use of critical care or emergency services with the implementation of a palliative care service (Brumley et al., 2007; Ciemins et al., 2007; Gade et al., 2008). Not only did the net cost of care decrease, but Gade et al. (2008), Brody et al. (2010), and Hua et al. (2018) found patients with access to palliative care services are more likely to be discharged to hospice care sooner than patients who received standard of care. Patients who were enrolled in a community Palliative Care program were also twice as likely to die at home versus during a hospital admission leading to a more peaceful surrounding at the time of their death (Brumley et al., 2007).

Mortality. Unintended or unwanted mortality is a potential risk for harm that needs to be considered prior to the introduction of any new intervention or evidence-based policy change. Mosenthal et al. (2012) describe barriers to the implementation of palliative care in trauma and surgical intensive care units that include life-saving attitudinal challenges on behalf of providers regarding the misconception that these two models of care are mutually enhancing and provide beneficial patient outcomes when provided in tandem rather than sequentially as is often the case. Five articles in this review (Braus et al., 2015, p. 58; Ciemins et al., 2007, p. 1351; Gade et al., 2008, p. 186; Hua et al., 2018, p. 1069; Kupensky et al., 2015, p. 264) found no difference between group mortality rates and a palliative care intervention, and White et al. (2018) found the

same results in their stepped-wedge, cluster-randomized trial measuring the effect of a family-support intervention and the effect it had on the mortality of critically ill patients (p. 2373).

Any positive intended effect on mortality is extremely beneficial and should be sought out, especially the type that is regarded as higher in quality over quantity as a terminal disease trajectory begins to take its toll. This point reiterates the need for timely conversations regarding advance directive discussions and code status updates for patients who are seriously ill. As Gade et al. (2008, p. 185) and Kupensky et al. (2015, p. 264) have shown, a palliative service consultation increases the rate of these discussions for patients admitted to the intensive care. Having this knowledge presents a chance to improve the standard of care that is currently delivered to allow health care providers to continue to safely advocate and care for their patients to their fullest abilities.

Length of stay. Overall hospital length of stay and intensive care unit length of stay were measured outcomes for six of the nine scholarly studies included in this inquiry. However, Ciemins et.al. (2007, pp. 1350-1352) and Gade et al. (2008, pp. 185-186) both reported reduced intensive care length of stay among palliative care cohorts that each correlated to cost savings. Gade et al. (2008) compared the total health costs between the randomized control trial cohorts using a non-linear model with a negative binomial distribution and a log link (unused due to lack of skewed data), presented the costs as total costs per patient, and included the palliative care costs in the net costs savings (pp. 183-184). Ciemens et al. (2007) also noted a significant switch to the utilization of pain and symptom management resources with fewer intensive care charges among cohorts who received a Palliative Care team consultation than those who did not

($p < 0.01$) (p. 1351). Brumley et al. (2007) noted that patients enrolled in the palliative care group experienced reduced length of hospital stay ($p < .001$; $R^2 = .14$) and emergency department visits ($p = .02$; $R^2 = .04$) compared to the control group when adjusted for survival, age, and severity of illness (p. 998). The intervention cohort remained in the study for 196 days on average leading to an additional area of savings in emergency room readmission costs validated with linear regression modeling. After controlling for survival, age, severity of illness, and primary disease overall, cost of care for those in the palliative care group were 33% less than the usual care group ($p = .03$; 95% CI [\$12,411, -\$780]; $R^2 = 0.16$) with a significant decrease in cost per day as well ($t = -2.417$; $p = .02$) (p. 998).

Additional decreases in hospital length of stay were also reported by Braus et al. (2015) after “adjusting for potential confounders, hospital length of stay was significantly shorter in the intervention group (which included palliative care), with an estimated 26% shorter hospital length of stay (95% CI [31%, 20% shorter], $p < .001$)” than the control cohort (p. 58). Kupensky et al. (2015) also noted a significant reduction in hospital length of stay for patients with a Palliative service on or before post-trauma day two ($M = 7.92$ days vs $M = 13.11$ days; $p = .001$), and a significant reduction in surgical intensive care length of stay for patients with a Palliative service intervention on or before post-trauma day two as well ($M = 6.40$ vs days vs $M = 11.81$ days; $p = .001$) (p. 262). White et al. (2018) also observed a significantly shorter mean length of intensive care unit stay in the palliative care cohort than the control cohort (6.7 days vs 7.4 days; incidence rate ratio = 0.90; 95% CI [0.81, 1.00], $p = .045$) (p. 2370). The mean length of stay in the hospital where the intensive unit was located was significantly shorter in the palliative care cohort

than in the control group (10.4 days vs 13.5 days; incidence rate ratio, 0.77; 95% CI [0.69, 0.87], $p < .001$) (p. 2370). The evidence of reduced length of stay and cost as a beneficial outcome of the palliative care cohort is reinforced by the overwhelming lack of evidence for a difference in mortality between the two cohorts in studies that reported data for mortality (Braus et al., 2015, p. 58; Ciemins et al., 2007, p. 1351; Gade et al., 2008, p. 186; Hua et al., 2018, p. 1069; Kupensky et al., 2015, p. 264).

Patient and family satisfaction. Critical illness is largely one of the most stressful moments in the lives of patients and their families. If a loved one is unable to speak for themselves due to a sudden illness, it can seem to family members who are making decisions that they are navigating alone. Therefore, frequent quality communication is important for patients, families, and clinicians to ensure clarity of goals of care and mutual understanding.

White et al. (2018) detailed the importance of clinician-family communication and patient/family centered care with a three-phase multicomponent family-support intervention that consisted of advanced communication training for the critical care nurses leading the intervention, a pathway protocol that initiated clinician-family meetings within 48 hours following enrollment and at least every five to seven days, and support for implementation as provided by a quality-improvement specialist. Family members' rating of the quality of clinician-family communication during hospitalization was significantly improved in the group that received the multicomponent family-support intervention than in the control group given increased mean Quality of Communication scale scores (scores range from 0 to 100 with higher scores indicating better communication) (69.1 vs 62.7; beta coefficient = 6.39; 95% CI [2.57 - 10.20], $p = .001$).

Surrogates' reported significant increase in ratings for patient- and family-centeredness of care for those receiving intervention than without given rise in mean modified Patient Perception of Patient Centeredness scale (scores range from 1 to 4 with lower scores indicating more patient and family-centered care) (1.7 vs 1.8; beta coefficient, -0.15; 95% CI [-0.26, -0.04], $p = .006$) (p. 2370).

Similarly, Gade et al. (2008) reported their palliative care cohort experiencing higher mean satisfaction for both the Place of Care Environment scale (palliative care cohort: 6.8, Usual Care: 6.4, $p < .001$) and the Doctors, Nurses/Other Health Care Providers Communication scale (palliative care cohort 8.3; UC: 7.2, $p < .001$) (p. 186). The use of the Place of Care Environment scale in this context measures patient experiences surrounding “pain management and symptom relief, psychological and social support, discharge planning, and end-of life planning with higher scores indicating increased satisfaction” (p. 183). The Doctors, Nurses/Other Health Care Providers Communication scale measures patient experiences surrounding “the level of caring and respect a patient felt from their providers, as well as the opportunity, ease, and the level of understanding the patient had with their providers” (p. 183). Patients who reported higher scores indicated an increased level of caring, respect, and understanding between themselves and health care providers.

Palliative Care Guideline Implementation Analysis

The NCP Guidelines (2018) were appraised and analyzed using the Appraisal of Guidelines for Research and Evaluation (AGREE) II Instrument (Brouwers et al., 2010). Please refer to Appendix C for a full AGREE II Instrument appraisal of the guideline. Originally designed in 2003 and updated in 2010, the AGREE II appraisal platform is

comprised of six domains that evaluate scope and purpose, stakeholder involvement, rigor of development, clarity of presentation, applicability, and editorial independence of the selected practice guidelines. The AGREE II appraisal tool has shown to be both valid and reliable for use when critically appraising clinical practice guidelines (Brouwers, Florez, McNair, Vella, & Yao, 2019; Hatakeyama et al., 2019).

Clinical Practice Guidelines for Quality Palliative Care (National Coalition for Hospice and Palliative Care [NCP Guidelines], 2018). The Scope and Purpose domain of the NCP Guidelines (2018) was the most robust domain within the recommendations for incorporating palliative care. The overall aim, health questions, and target population of the guidelines were detailed within this domain and described with accuracy and clarity.

The Stakeholder Involvement domain provides details regarding how well the guidelines incorporated the appropriate stakeholder perspectives representative views during its development. While this domain was strong, it lacked input from key stakeholders including patient, families, and critical care medicine. Therefore, while the guidelines incorporated many voices that strengthen the documents objectivity including those from hospice, Palliative Care teams, nursing, social work, chaplaincy, long-term care, physician assistants, and medicine, there were more opportunities for specialty provider and patient perspectives.

The Rigor of Development domain appraises the methodologies utilized to form the evidence and recommendations within the guidelines, and whether they provide an update method. This was the weakest of the domains appraised within the guidelines. There was a direct link between the recommendations and the supporting key research

evidence that was described at the end of each domain. However, while the process utilized to gather and synthesize the evidence and the methods used to formulate the guidelines' recommendations were robust, there were little detail within the guidelines regarding risks of intervention or methods with which the guidelines were to be updated. A process for the review of new evidence or an update to the guidelines was not found anywhere within the guidelines itself or any of the supplements.

The Clarity of Presentation domain consists of language, structure, and format of the guidelines. While key recommendations were not found, the structure and format of the guidelines were clearly presented and easy to navigate by the reader. The recommendations were written in a specific and unambiguous manner. The guidelines were precise and divided into eight domains with corresponding recommendations, criteria, clinical and operational implications, essential palliative care skills needed by all clinicians, key research evidence, and practice examples. Clearly written recommendations were provided with descriptions of populations and clinical situations when applicable. Alternatives were clearly written for recommendations when applicable. A summary of key revisions for each domain was provided at the beginning. However, no executive summary or conclusion could be found within the guidelines. A summary of the findings could be found in the discussion narrative of the supplemental systematic review of the evidence (Ahluwalia et al., 2018, pp. 863-864).

The Applicability domain captures the barriers and facilitators to guideline implementation, strategies to improve uptake, and the resource implications inherent to the guidelines. Many resources were highlighted to assist in applying the guidelines. Emerging key themes were addressed by the guideline development summit, considered

as recommendations for the structure of the guidelines, and included as specific domain considerations. A vast list of resources and tools were listed by domain and available in Appendix II of the guidelines (NCP Guidelines, 2018, pp. 70-84). The NCP Guidelines (2018) also listed groups that comprise their coalition with their corresponding websites, all of which offer tools and advice on implementing palliative care across a wide variety of specialties and settings. However, the guidelines themselves did not cover specific facilitators or barriers to implementation such as cost implications or reimbursement issues regarding palliative care across settings.

The Editorial Independence domain assesses for undue bias or competing interests regarding the development of the guidelines. The systematic review team had one member reporting a conflict of interest; however, members of the steering committee and the writing workgroup did not have conflicts of interests or disclosures. The funding for the creation of the document was provided within the Acknowledgments section and was easily accessible.

Barriers to Implementations

Intensive Care Unit (IPAL-ICU) Project Advisory Board and the Center to Advance Palliative Care (Mosenthal et al., 2012). Certain barriers and facilitators exist toward the effective integration of palliative care and surgical critical care patients and their families. Therefore, it is important to define the challenges, strategies, and solutions for integration of palliative care in all areas of intensive care (Mosenthal et al., 2012).

Mosenthal et al. (2012) performed a systematic review of English language articles from 1966-2011 using the MEDLINE database (PubMed-National Library of Medicine), as well as an internal review of articles and experiences from an

interdisciplinary expert Advisory Board that consisted of members who authored the report. Key terms included “‘surgical palliative care’ or the terms surgical critical care’, ‘surgical ICU’, ‘surgeon’, ‘trauma’ or ‘transplant’, and ‘palliative care’ or ‘end-of-life care’” (p. 1200).

While no explicit data collection process is mentioned, studies were selected to focus on facilitators, barriers, models, and interventions that enhance the integration of palliative care for patients and their families in the surgical critical care setting. A limited summary regarding data extraction and synthesis was provided beyond the identification of an interdisciplinary expert Advisory Board that both preformed the data retrieval, extraction, synthesis, and were also the authors of the systematic report.

Mosenthal et al. (2012) concluded their systematic report with several findings (pp. 1201-1204). First, that characteristics of patients in surgical intensive care and practices, attitudes, and interdisciplinary interactions present unique problems for the integration and improvement of palliative care into surgical intensive care. Second, that interdisciplinary stakeholders from surgery, critical care, and palliative care should be involved in identifying unit specific challenges and strategies. Third, that appropriate Palliative Care models such as the consultative, integrative, and combined models that can be used to improve the integration into intensive care. Fourth, that an improvement effort should include considerations of unit and institutional culture, attitudinal factors, efficient work systems, and practical tools require continuous attention. Fifth, that the combined delivery of palliative care and surgical critical care in the intensive care unit show greater promise for integration. Finally, that the optimal use of trigger criteria for Palliative Care team consultations has not been adequately established.

Summary of the Literature Review

The relationship between quality of life and a person's overall wellbeing are proportional to each other. The following summary of the literature will synthesize the overall evidence included in the themes described above. Also included is a summary of the guideline implementation analysis, systematic report analysis, strengths of the evidence, and gaps in clinical knowledge related to the current problem.

Symptom Management. The studies described in the literature review provide reinforcement on how the foundational principles of palliative care help to create a holistic approach to symptom and treatment approaches in patients who are critically ill. There was repeatability across studies of varying types and strength validating the evidence of data published by the authors that show reduced symptom burden with patients who received palliative care interventions versus those who did not (Ciemins et al., 2007; Kupensky et al., 2015).

Stewardship. Proper utilization of critical care resources is more important than ever due to the ever-increasing cost and utilization of critical care medicine. Halpern, Goldman, Tan, and Pastores (2016) found national critical care costs per day nearly doubling between the years 2000 and 2010 from \$56 billion to \$108 billion (p. 7). Given that several authors (Brody et al., 2010; Brumley et al., 2007; Ciemins et al., 2007; Gade et al., 2008; Hua et al., 2018; Kupensky et al., 2015) noted cost savings in correlation with the introduction of a palliative care intervention, exhaustive efforts should be made to bridge the gap that continues to exist between critically ill patients who receive timely Palliative Care team consultations and those who do not.

Mortality. Barriers to implementation include life-saving attitude and the misperception among clinicians that palliative care is mutually exclusive from critical care (Mosenthal et al., 2012). However, there was no benefit between patients receiving Palliative Care team consultations and those who did not receive a consult (Braus et al., 2015; Ciemins et al., 2007; Gade et al., 2008; Hua et al., 2018; Kupensky et al., 2015; White et al., 2018).

Length of Stay. Another theme that bears an impact on resource utilization and overall cost is patient hospital and intensive care unit length of stay. Readmissions to the emergency department following a hospital admission were noted to be reduced when patients were provided with palliative care services prior to discharge (Brumley et al., 2007; Gade et al., 2008). The total amount of time a patient spends in the intensive care unit may increase the burden to the patient's quality of life and the overall cost to the system if their goals of care are not in balance with their health care wishes. Hence, the additional significant reductions in overall hospital stay (Braus et al., 2015; Brumely et al., 2007; Ciemins et al., 2007; Kupensky et al., 2015) and intensive care length of stay (Ciemins et al., 2007; Gade et al., 2008) seen with the initiation of a palliative care service warrant a broader push for implementation.

Patient and Family Satisfaction. Frequent quality communication is important for patients, families, and clinicians to ensure clarity of goals of care and mutual understanding. As mentioned above, palliative care facilitates the timely discussions of advance directives and code conversations, eases symptom burden, and reduces the amount of time spent in the intensive care unit where a patient may receive unwanted treatments that are discordant with their goals of care. The randomized multi-intensive

care unit control study by White et al. (2018) which used a multicomponent family-support intervention delivered by the intensive care team noted improvements in reports of family reports of quality communication and patient family-centered care (p. 2370). Gade et al. (2008) also observed an increase in patient reported levels of satisfaction with their care experience for patients who were exposed to a palliative care service than those who were not.

Palliative Care Guideline Implementation Analysis. The NCP Guidelines (2018) has a clearly defined scope and purpose, establish stakeholder involvement, are rigorously developed, present information clearly, maintain editorial independence when assessed with the AGREE II appraisal tool, and are appropriate for use in critically ill patient populations. The guidelines provide thorough recommendations with extensive criteria that are supported by a well-designed systematic review performed by a reputable external group. Resources are provided via Appendix II within the clinical guidelines (p. 70). The National Coalition for Hospice and Palliative Care offers a plethora of web-based resources, as well as education modules and toolkits for initiating palliative care in the ICU.

The NCP Guidelines (2018) highlight the importance of palliative care services during transitions of care in all care settings by working with an interdisciplinary team of physicians, advanced practice registered nurses, physician assistants, nurse managers, staff nurses, social workers, chaplains, and other pertinent stakeholders to provide a holistic-centered delivery of health care (pp. 1-5). This type of patient and family-centered care is requires synergistic effort by the entire group of primary care providers,

supportive clinicians, and a team of interdisciplinary stakeholders to ensure successful integration into routine practice in intensive care (NCP Guidelines, 2018, p. 1)

The systematic report from the IPAL-ICU Project Advisory Board and the Center to Advance Palliative Care (Mosenthal et al., 2012) revealed the following findings of importance in relation to facilitators, barriers, and strategies for the implementation of palliative care in surgical trauma intensive care units. The emergent nature and needs of patients in surgical intensive care and lingering practices and attitudes of surgeons. The importance of interdisciplinary stakeholders from surgery, critical care, and palliative care involvement in identifying unit specific challenges and strategies. That appropriate models of palliative care such as consultative, integrative, and combined models be used to improve to integrate palliative care into intensive care. That improvement efforts should include considerations of the specific cultures of the unit and facility, attitudinal factors, efficient work systems, and practical tools required for continuous improvement review. That utilizing a combined approach to care with the simultaneous delivery of palliative care and surgical critical care in the intensive care unit will provide greater promise for integration. Finally, the report found that the optimal use of trigger criteria for Palliative Care team consultations has not been adequately established.

The thorough NCP Guidelines (specific criteria with supporting evidence) and the clinically revealing IPAL-ICU report (site specific recommendations for implementation) may create a suitable approach to developing literature that provides the basis for an evidence-based quality improvement project on the integration of palliative care in intensive care.

Strengths in the Literature. Three of the nine studies under review were determined to be Level two evidence, or greater, of seven levels. While two of the nine studies under review were determined to be Level three evidence, or greater, of seven levels. The overall evidence supporting the benefits of implementing palliative care services in patients in all stages of serious illness has undeniably been corroborated (Brody et al., 2010; Brumley et al., 2007; Ciemins et al., 2007; Gade et al., 2008). Evidence supporting the integration of palliative care services in patients who are critically ill exists, but is continuing to develop with regards to specific timing and tools used for referral, and the model utilized (Braus et al., 2015; Kupensky et al., 2015; Hua et al., 2018; Mosenthal, 2012; White et al., 2018).

Gaps in the Literature. There were three articles under review that did not look directly at inpatient palliative care services as part of their study design (Brumley et al., 2007; Desbiens et al., 1999; White et al., 2018). However, these articles were deemed necessary to set up the narrative in retrospect of another gap in the literature; the lack of strong evidence that currently exists supporting the implementation and timing of palliative care in critically ill patients.

A large number of articles under review utilized partially controlled settings such as quasi-experimental retrospective cohort sampling, rather than higher levels of evidence such as random control trials (Braus et al., 2015; Brody et al., 2010; Ciemins et al., 2007; Desbiens et al., 1999; Hua et al., 2018; Kupensky et al., 2015). The number of these quasi-experimental studies is further proof of the absence of high-quality evidence that exists regarding the implementation of palliative care in critically ill patients.

The outcomes described above under the main themes (i.e. reports of decreases in quality of life, dyspnea, pain, and anxiety, adequate referrals, increased code status/advance directive conversation documentation/update, intensive care/hospital length of stay, hospital costs, emergency room readmissions, patient/family satisfaction) correlated with a Palliative Care team intervention. Even an in-home palliative care study by Brumley et al. (2007) observed correlation between inpatient hospital variables such as decreases in emergency department readmissions and decreased hospital costs related to reduced hospital stays for those with Palliative Care team consultations (pp. 997-998).

The systematic report from the IPAL-ICU Project Advisory Board and the Center to Advance Palliative Care (Mosenthal et al., 2012) failed to report details regarding methodology including data appraisal process, data synthesis process, or summary of measures. Furthermore, there were no reports of attempts to eliminate bias from these processes. A critical appraisal via Duffy, M. E. (2005) of the systematic report can be found in Appendix C.

CHAPTER III

Conceptual Frameworks

The following section includes a narrative of the relevant theory and model that are most suitable to the context from which this scholarly inquiry is derived. A description of the conceptual model, evidence-based practice model, and a summary of the conceptual frameworks are included.

Conceptual Theory

Dobrina, Tenze, and Palese (2014) present a review of Dr. Mary Ann Murray's, PhD work in a literature review on the topic of hospice and palliative care nursing models and theories. Dr. Murray's theory is rooted in her experience as an advanced practice registered nurse, and she maintains her clinical and research expertise in palliative care as a senior clinical investigator in the department of clinical epidemiology at the Ottawa Hospital Research Institute (Ottawa Hospital Research Institute, 2014). In 2007, Dr. Murray developed the Transitions Model of Palliative Care, a conceptual framework model that "emphasizes the interdisciplinary focus and holistic approach of [palliative care] within the context of good chronic care management" (Murray, 2007, p. 368) This framework was developed in response to her experience as an advanced practice registered nurse; patient and family reports regarding lapses in care created by a lack of supportive services; misunderstandings of how palliative care is traditionally used; and through careful review of current and relevant literature, policy, and professional standards of practice (Murray, 2007).

In practice, the Transitions Model of Palliative Care is useful in facilitating patient engagement and empowerment, while also giving the needed respect to the authenticity and knowledge of patients and their families, and improving nurses'

knowledge, skills, and confidence surrounding transitions in care (Murray, 2007). This approach focuses on providing patients with the information to aid in mediating positive outcomes. It is important to remember, that while these under- or uninformed decisions regarding critical illness create unnecessary burdens to patients and their families, they can be more easily overcome by providing the evidence based tools and resources that will aid them by tailoring individual care that matches their changing needs while transitioning through illness (Murray, 2007).

The major concepts within the Transitions Model of Palliative Care that apply to this specific question of inquiry are quality of life, palliative care, health services delivery, chronic condition management, and decision making (Murray, 2007).

Outcomes that are relevant to this topic, as defined by the Transitions Model of Palliative Care, include ensuring: patients and families experience an informed quality of life; satisfaction with their decision-making process, participation, and access to services; an increase in the number of advance directives and congruency of care; and a reduction in unwanted or unnecessary emergency interventions (Murray, 2007). These outcomes are directly related to the goals of palliative care, because when palliative care services are utilized properly, they have the potential to decrease patient symptom burden, thereby increasing overall quality of life (Chan et al., 2013).

Evidenced Based Practice Model

The Iowa Model of Research-Based Practice to Promote Quality Care (Titler et al., 2001) was utilized for both the method of integrative literature review and as an evidenced based practice model to guide recommendations for future evidence-based practice projects investigating the role that admission screening tools have on Palliative

Care team consults given the knowledge surrounding the benefits of timely Palliative Care team consultations in the intensive care unit. The Iowa Model aids health care professionals in the translation and synthesis of research findings into clinical practice and improves patient outcomes by aiding in the implementation of practice change through a step-by-step process (Grove, Burns, & Gray, 2023, p. 496; Titler et al., 2001, p. 498). The first step used in this process is to determine whether there is a problem-focused trigger or a knowledge-focused trigger where an evidence-based practice change should be considered. For this inquiry, a knowledge-focused trigger based on a review of the literature could be used to attempt to answer the clinical question regarding the underutilization of palliative care services in intensive care units.

The next step in the Iowa Model is to decide whether the problem of underutilization of palliative care services in intensive care units warranted prioritization for change within the existing health care system. This is evidenced by the data described in the literature review that supports the findings that palliative care service is associated with a reduction in intensive care length of stay, improved symptom management, improved communication between clinicians and families, improved patient and family satisfaction, cost savings, reduced intensive care unit readmissions, improved quality of life, and a potential reduction in the moral distress experienced by health care workers who deliver end-of-life care.

Once the priority has been determined, the next step is to create a team of interdisciplinary stakeholders to assist in the development, evaluation, and implementation of the evidence-based practice change. In this step it is crucial to ensure that the members of this team represent members from all relevant disciplines or existing

committees including Palliative Care team specialists, surgeons, intensivists, advanced practice nursing, nursing leadership, nursing educators, case management, ethics teams, bedside nursing, and respiratory therapy. This team will then carry out the next step of gathering and critiquing the pertinent research, clinical protocols, and clinical practice guidelines to develop a clinical practice question to guide the literature review and research.

Once there is adequate literature to support the clinical question, the next step is to critique and synthesize the research. It is important to ensure that the research gathered include scientifically sound principles such as adequate sample sizes, internal validity, external validity, study design, sampling plan, and reliability. Based on the review of the research, there will need to be a decision as to whether enough supportive research exists to support an implementation of a practice change. When determining if the reviewed research should be implemented into a pilot project for practice change, Titler et al., (2001) suggest that common findings from the research that consistently support the change, that the group consider the type and quality of the research and the relevance of the findings, the amount of research containing similar sample characteristics, the feasibility of carrying out the findings into practice, and the risk-benefit ratio. If these criteria are met, the team may then plan on initiating an evidence-based implementation of a pilot project to address the selected clinical problem and to answer the PICO question. It is important to ensure that the change is feasible and will result in improved patient outcomes prior to ramping up implementation. If minimal research-based evidence on which to base the practice change in question exists, then further studies may need to be conducted. However, the use of alternative types of evidence may be utilized

as an alternative to conducting a study to guide practice such as case reports, expert opinion, scientific principles, and theory to guide practice change (Grove, Burns, & Gray, 2023, p. 496; Titler et al., 2001, p. 505).

Summary of Conceptual Frameworks

One of the main goals of palliative care is to improve patients' quality of life. Murray's conceptual framework for palliative nursing is a salient model for this demographic as it focuses on a holistic approach to interdisciplinary care while engaging and empowering patients and their families through difficult choices. This model also aligns with palliative care due to their shared goals of informing patient quality of life, ensuring access to services, increased advance directives, congruency of care, and a reduction in unwanted interventions.

The use of the Iowa Model for this inquiry is related to its known use as an evidence-based model for the development of practice change in clinical practice settings (Grove et al., 2013). Murray's holistic concept of emphasizing an interdisciplinary focus to the management of care, while improving clinicians' knowledge, skills, and confidence matches the Iowa Model's direction toward identifying triggers for change, implementing evidence-based practice change, and monitoring changes that have been put into practice.

CHAPTER IV

Conclusions, Implications for the Interdisciplinary Team, and Recommendations

Introduction

The following section includes conclusions, implications for the interdisciplinary team, recommendations for practice, and a summary of the scholarly inquiry paper.

Conclusions

Palliative care services are commonly known to enhance critically ill patients' wellbeing and quality of life (Brumley et al., 2007; Ciemins et al., 2007; Gade et al., 2008; Kupensky et al., 2015). These services are also recommended for full integration into all intensive care unit settings by major clinical guidelines and critical care societies (American College of Surgeons, 2017; Davidson et al., 2008; Joint Commission, 2016; Lanken et al., 2007; Medina & Puntillo, 2006; NCP Guidelines, 2018; Selecky et al., 2005). Palliative care services decrease symptom burden, enhance critical care resource utilization, and decrease intensive care unit length of stay days without increasing mortality (Ciemins et al., 2007; Kupensky et al., 2015). Critically ill patients admitted to intensive care are ideally provided with palliative care services within 24 hours of admission (Mosenthal et al., 2012). The ideal staff required to provide adequate palliative care services to critically ill patients would include an interdisciplinary team comprised of Palliative Care team specialists, surgical intensivists, consulting clinicians, advanced practice registered nurses, physician assistants, nursing managers, nursing staff, social work, case managers, and chaplaincy (Mosenthal et al., 2012; NCP Guidelines, 2018).

Implications for Nursing

The themes identified within the literature review are important variables that can be affected by utilizing different evidence-based approaches such as the use of early trigger criteria that facilitate the early identification and treatment of appropriate patients and families in intensive care. To summarize, these themes included symptom burden, stewardship of care and resources, and patient- and family-satisfaction with care. Patients with critical illness will experience the spectrum of at least one of these variables in their lifetimes. Nurses have historically been integral to the development and implementation of palliative care from its inception as a model out of hospice nursing. Regardless of the barriers that currently exist, nurses continue to be champions of ensuring palliative care services are accessible to seriously ill patients who require them. After all, it is most often a nurse who maintains the final safety net of advocacy for the seriously ill patients who often cannot advocate for themselves in a time of crisis. Nurses will undoubtedly be the impetus continuing to drive clinical change and outcomes that help ease the barriers palliative care faces with integration in intensive care systems. The NCP Guidelines (2018) describe nurses as key figures in the immediate assessment and reassessment of patient needs, and they are obliged to ensure that the facilities in which they practice are proactively expanding their approach to the integration of optimal palliative care services.

Practice Recommendations

The following section of the scholarly inquiry paper will evaluate practice recommendations regarding timing, models for palliative care, use of triggers, and personnel for palliative care services in the critically ill.

Timing. It is recommended that patients be assessed for their need for palliative care services within 24 hours of admission to an intensive care unit, and that they receive a family meeting to discuss treatment plan and goals of care within 72 hours following admission (Mosenthal et al., 2012). Based on a correlation between early initiation of palliative care services and benefits that critically ill patients experience, there is strong evidence that supports the timely incorporation of palliative care services with intensive care due to outcomes of increased symptom management (Kupensky et al., 2015), increased congruity between patient wishes and treatment plans (Gade et al, 2008; Kupensky et al., 2015), increased overall patient and family satisfaction with care and communication with providers (Gade et al., 2008). The NCP Guidelines (2018) also recommend that timely assessments be provided to all patients, regardless of the care setting, and that assessments be completed each time that a care transition occurs. The positive influence that palliative care services have on outcomes such as symptom burden, congruity of care, and overall satisfaction with care are a reflection on the role that palliative care has on patients' quality of life. The implementation of these services should be utilized at the earliest onset within an intensive care admission and made available to all critically ill patients. Additionally, no difference in rates of mortality were found among intensive care patients who received palliative care services when

compared to patients who did not receive palliative care services (Braus et al., 2015; Gade et al., 2008; Hua et al., 2018; Kupensky et al., 2015).

Models for Palliative Care. The following models have been described for use in the integration of palliative care consultation in the intensive care unit (Isaac & Curtis, 2020). Selection of the appropriate model demands consensus between the relevant interdisciplinary stakeholders, consideration of the unit specific resources available such as a specialized Palliative Care team, the intensive care unit being one of open model as opposed to a closed model, and cultures of local and institutional critical care practice (Mosenthal et al., 2012). NCP Guidelines (2018) provide criteria that support the recommendations that facilitate the determination of facility-specific barriers to specialty Palliative Care long-term security and its long-term sustainability and development.

The consultative model. This model utilizes a specialized Palliative Care team to promptly address the needs of critically ill patients and their families, with a priority placed on those who are at the highest risk for poor outcomes (Mosenthal et al., 2012; NCP Guidelines, 2018). This model has benefits that include specialized input from an interdisciplinary Palliative Care team, continuity of care across all areas of intensive care units and upon transfer to inpatient areas, and improved placement of patients to appropriate levels of care at the time of discharge from intensive care such as increased discharge to hospice (Gade et al., 2008; Hua et al; 2018; Kupensky et al., 2015; Mosenthal et al., 2012). Barriers to this model may include provider misconception that palliative care is equated to comfort cares and limiting treatment, especially in the surgical trauma intensive care setting (Mosenthal et al., 2012) Feasibility issues may also be observed in facilities that have not already established a robust specialist Palliative

Care program or the resources to support the influx of newly established critical care patient consultations (Mosenthal et al., 2012).

The integrative model. This model provides an approach to palliative care in the intensive care unit that instills the principles of palliative care into the daily practice of the attending provider and corresponding critical care team (Mosenthal et al., 2012). While this model lacks the specialized benefits of the consultative model, it may assist in increasing the clinical understanding and education of critical care clinicians regarding the principles and treatment that guide palliative care, and in doing so emphasizes palliative care as a core component of critical care (Mosenthal et al., 2012). This model may be more attractive for implementation to facilities that have not already established a specialty service, or if the facility cannot meet the anticipated demand of new consultations placed on the Palliative Care team that may be incurred on by an implementation project (Mosenthal et al., 2012). Barriers to the implementation of this model may include poor commitment from critical care interdisciplinary staff and the facility's ability to provide the necessary clinical education requirements for a quality integrative model implementation (Mosenthal et al., 2012).

The combined model. This model integrates elements from the previous models and may have less feasibility issues across different areas of critical care (Mosenthal et al., 2012). This type of palliative care model has shown promise across varying specialty areas of critical care when there is an established specialty Palliative Care team that has already been established (Mosenthal et al., 2012). More evidence may be needed when determining which specific type of intensive care unit is most appropriate for the implementation of this model (Mosenthal et al., 2012).

Use of triggers. Determining which critically ill patients are at the greatest need for palliative care is often reactive and at the sole decision of the patient's attending clinician. However, when a specific set of trigger criteria are utilized palliative care screening can be carried out on a routine and proactive basis that allows for a more consistent access to care, especially when the result of these screening tools are policies that require specialized Palliative Care team consultation (Mosenthal et al., 2012; NCP Guidelines, 2018). Leaving this decision solely up to the discretion of the attending surgeon or critical care intensivist may result in an inconsistent referral process and an inefficient model of palliative care with patients who have unmet needs (Mosenthal et al., 2012). Data regarding best-evidence for use of triggers and palliative care screening criteria in this population have not been adequately provided in the current literature (Mosenthal et al., 2012) and may need to be considered for future implementations of palliative care in intensive care.

Personnel. The treatment team that develops implementation criteria and delivers palliative care services to patients in the intensive care unit should be comprised of an interdisciplinary team of stakeholders including critical care team leaders, Palliative Care team, hospital leadership, primary attending clinicians, advanced practice registered nurses, critical care nursing staff, patient and family representatives, social work, case management, chaplaincy, and ethics group (Mosenthal et al., 2012; NCP Guidelines, 2018). The utilization of these stakeholders' voices in the ongoing process of implementation and quality improvement will provide an inherent feature of expertise for the integration of the three previously mentioned models of palliative care with critical care.

Summary

Based on this scholarly inquiry project, the outcome was to provide background information on the past practices of medicine, specifically focusing on the integration of palliative care with intensive care. Services provided by palliative care are well positioned to assist in this holistic nursing-based approach. Current recommendations establish that palliative care is a service that should be considered standard of care for patients experiencing critical illness (American College of Surgeons, 2017; Davidson et al., 2008; Joint Commission, 2016; Lancken et al., 2007; Medina & Puntillo, 2006; National Consensus Project Clinical Practice Guidelines for Quality Palliative Care, 2018; Selecky et al., 2005). Benefits of timely access to palliative care services for patients admitted to the intensive care unit are great and directly affect patients' quality of life, immediate budget costs, and downstream health care costs (Braus et al., 2015; Ciemins et al., 2007; Gade et al., 2008; Hua et al., 2018; Kupensky et al., 2015; Mosenthal et al., 2012; White et al., 2015). Several models of palliative care exist that offer facilities a degree of flexibility when designing an implementation strategy for an evidenced-based quality improvement initiative that is best suited for their specific environment (Mosenthal et al., 2012). Continued studies may be necessary to explore the validity of trigger/screening criteria tools for the purposes of initiating specialized Palliative Care team consultation in the intensive care unit (Mosenthal et al., 2012). An approach that spans the input from a variety of key stakeholders is vital to creating an interdisciplinary team to design, implement, and review an evidence-based project that focuses in the increasing the integration of palliative care in the intensive care unit (Mosenthal et al., 2012; NCP Guidelines, 2018). The literature reviewed within this

scholarly inquiry paper shows a plethora of evidence-based research which supports and encourages the integration of timely access to palliative care services within all areas of intensive care (Braus et al., 2015; Ciemins et al., 2007; Gade et al., 2008; Hua et al., 2018; Kupensky et al., 2015; National Coalition for Hospice and Palliative Care, 2018; Mosenthal et al., 2012; White et al., 2015).

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APPENDIX A
Literature Search Dates, Keywords, Sources, and Results

Search Date	Row ID	Key Words	Restrictions (e.g. Peer Reviewed Journals)	Dates Included in Search	Database Used	Number of Hits Listed	Number of Hits Reviewed	Number of Hits Used
04/14/2020	1	Palliative Care, intensive care, systematic review, evidence based	Peer reviewed journals, English language	01/01/1999-01/01/2020	CIHAHL Complete	21	3	1
04/14/2020	2	Palliative Care, intensive care, length of stay	Peer reviewed journals, English language	01/01/1999-01/01/2020	CINAHL Complete	263	20	2
04/21/2020	3	Seriously ill, quality of life, symptom burden	Peer reviewed journals, English language	01/01/1999-01/01/2020	CINAHL Complete	14	2	1
04/27/2020	4	Palliative medicine consultation, symptom management, length of stay	Peer reviewed journals, English language, Free full text	01/01/2015-01/01/2020	PubMed	60	5	1
05/15/2020	5	Inpatient palliative care team, quality of life, discharge	Peer reviewed journals, English language	01/01/1999-01/01/2020	CINAHL Complete	22	3	1
05/18/2020	6	Inpatient palliative care consultation, economic impact, length of stay	Peer reviewed journals, English language	01/01/1999-01/01/2020	CINAHL Complete	9	2	1
05/18/2020	7	Inpatient palliative care, Randomized control trial, health care costs	Peer reviewed journals, English language	01/01/1999-01/01/2020	CINAHL Complete	7	2	1
06/01/2020	8	Randomized control trial, intensive care, family support	Peer reviewed journals, English language	01/01/1999-01/01/2020	CINAHL Complete	73	7	1

APPENDIX B
Palliative Care in Intensive Care Literature Review

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Braus, N. et al. (2015)	"To evaluate the effects of a palliative care intervention on clinical and family outcomes, and palliative care processes" (p. 54)	"24-bed ICU at a 566-bed academic medical center between June 2013 and June 2014" (p. 55) <i>n</i> =100 meeting trigger criteria during usual care phase <i>n</i> =103 ICU patients meeting trigger criteria during intervention Single Center Medical ICU	Pre-post interventional study usual-care phase and intervention phase Intervention-PC APRN interacting with ICU team during rounds Trigger initiated PC APRN review of EMR ICU team informed of eligible pts Subsequent days would lead to PC recommendations Formal PC not provided -Inclusion criteria Patients meeting ≥ 1 trigger -Exclusion criteria Patients awaiting solid organ transplantation	-Primary outcome patients with interdisciplinary family meeting documented in ICU -Secondary outcomes Time between ICU admission and family meeting ICU & hospital LOS In-hospital mortality Family satisfaction with ICU care ICU families' burden of psychological symptoms Family satisfaction and psych symptoms assessed using -Instruments FS-ICU, PHQ-8 scale, PTSD PCL-C, & QODD-1	"Intervention was associated with... 63% higher likelihood of documented family meeting occurring during the ICU stay (RR 1.63, 95% CI [1.14, 2.07], <i>p</i> =.01)" (p. 58) "...threefold higher proportion of (family) meetings that included ≥ 3 disciplines (60 vs 17% in the usual group, <i>p</i> <.001)" (p. 58) "After adjusting for potential confounders, LOS was sig. shorter in the intervention group, with an est. 26% shorter LOS (95% CI [31%, 20% shorter], <i>p</i> <.001)" (p. 58)	Use of straightforward trigger criteria leads to earlier and increased ICU family meetings Observed reduction in hospital/ICU LOS for pts who died in hospital may be d/t timely family meetings leading to earlier withholding or withdraw of treatment "Full PC consultation in high-risk pts... provide additional pt- and family-centered benefits might have improved the outcomes measured" (p. 59) No change observed to mortality due to intervention	-Recommendations interventions targeting prognostic awareness, symptom control, spiritual support, and better alignment of medical decisions with pt goals and preferences" (p. 59) Exclude pts with short LOS to eliminate difficulty observing small differences d/t pts w/ shorter ICU LOS Minimize confounding & bias with RCT studies -Limitations Underpowered Mailed surveys may "result in a less representative sample through nonresponse bias" (p. 60) Short baseline ICU LOS causes issues detecting clinically relevant differences in ICU LOS overall Poss. study observed change in doc practice	IV

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Brody, A. et al. (2010)	"The object of this study was to evaluate the impact of PCTs on discharge disposition" (p. 542)	Matched case-control study Pts seen by PCT in the study hospital from July 2004 to December 2006 N=361 matched pairs	-Inclusion criteria Acute care pts seen >1 by PCT -Exclusion criteria Pts who died during stay Pts <18 yo Initial hosp stay <2 days Hospice pts admitted for acute symptom management/respite Pts residing outside of major catchment area for the study hospital Pts missing data for any matching criteria For pts admitted mult times, only 1 st admission used	-Dependent variables Pts discharged to home w/o services Pts discharge to home with services Pts discharge to other facility Pts discharged to hospice -Instruments Wilcoxon's test and Chi-square distribution tables used to measure stat sig of continuous and categorical variables, respectively Multivariate modeling performed using multinomial logit regression used to analyze the effects of multiple variables on a nominal categorical variable with more than two categories	Multivariate analysis showed that "patients seen by the PCT were 3.24 times as likely to be discharge to hospice ($p<.0001$), 1.52 times as likely to be discharged to a SNF ($p<.001$), and 1.59 times as likely to be discharged to home with homecare ($p<.001$) than to be discharged home without services than those pts receiving UC" (p. 543) "Patients who died < 30days of discharge were 17.03 times as likely to be discharged to hospice ($p<.0001$), and 1.38 times as likely to be discharged home with services than those discharged home without" (p. 543)	Pts with PCT have greater chance of getting formal follow-up services at discharge (p. 544) "Pts receiving IP PCT consultation were more likely to be discharged to hospice at an earlier point in their disease trajectory" (p. 544) "Implementation of PCT could potentially decrease hospital exposure to readmissions and their subsequent uncompensated costs" (p. 547) "Better referral to appropriate services on discharge represents another benefit to appropriate services on discharge of inpatient PC consultation, adds to the rationale for improved end-of-life policy and reimbursement" (p. 547)	First initial study of its kind to examine inpatient PCT on discharge disposition Strong statistical analysis -Recommendations Examine effects of inpatient PCTs on discharge disposition using RCT methodology, examining larger number of hospitals with diverse structural characteristics (p. 547) "Examine the role hospital discharge planner play in the discharge process" (p. 547) -Limitations Possible selection bias d/t retrospective matching process Study performed by a single PCT in a single urban multi-campus hospital with a small sample size, reducing generalizability Independent examination of effects of Hispanic pts difficult to examine, they were not identified in database	III

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Brumley, R. et al. (2007)	Examines PC intervention for terminally ill patients at home.	Randomized, controlled trial (N = 297)	Two separate care facilities where patients receiving standard care (n = 152) were compared to patients who received standard care as well as in-home PC services (n = 145) "homebound, terminally ill patients (N = 297) with a prognosis of approximately 1 year or less to live plus one or more hospital or emergency department visits in the previous months"	Information regarding the effect PC services had on patients was measured as follows: Retrospective data regarding cost of care and services utilized were gathered from an HMO database. Participant satisfaction was measured using the Reid-Gunlach Satisfaction with Services instrument.	ED use greater for control vs PC group ($p=.01$; Cramer's $V=0.15$). Hospitalization rates higher for control vs PC group ($p<.001$; Cramer's $V=0.23$). Pts enrolled in the PC group had lower LOS ($p<.001$; $R^2=.14$) and ED visits ($p=.02$; $R^2=.04$) vs. control. Overall cost of care for PC group 33% < control ($p=.03$; 95% CI [\$12,411, -\$780]; $R^2=0.16$) with significant cut in cost/day ($t=-2.417$; $p=.02$) Satisfaction increased at 30 days and 90 days following enrollment ($OR=3.37$, 95% CI [1.42, 8.10]; $p=.006$ and $OR=3.37$, 95% CI [0.65, 4.96]; $p=.03$ respectively) PC patients > 2x's likely to die at home as control ($OR=2.20$, 95% CI [1.3, 3.7]; $R^2=.27$, $p<.001$)	This study provides strong evidence that PC increased patient satisfaction and reduced medical costs at the end of life Outcomes support the use of PC in terminally ill patients. Recommend reform of end-of-life care policy and changes to the current health care system to allow for better access to hospice and PC services	Increased patient satisfaction with services and health care providers Increase in number of patients who die at home Increase in number of patients who complete advanced directives Decreased mean health costs. Decreased ICU admissions and ED use Decreased LOS -Limitations Study does not look at inpatient PC effects Authors admit that those in the interventional group had higher satisfaction scores at baseline than the control ($p=.03$) Authors were all Kaiser Permanente employees or subcontracted with Kaiser Funding was provided by the Kaiser Permanente	II

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Ciemin s, E. et al. (2007)	"Evaluate the economic and clinical impact of the inpatient PC consultation service at the California Pacific Medical Center in San Francisco, CA, using a multifaceted approach" (p. 1348)	N=282 PC patients; matched cohorts included n=27 PC pts and n=128 UC pts N=48 PC pts for clinical outcome analysis Large private, not-for-profit, academic medical center in San Francisco, CA, 2004-2006	Multifaceted study design Interrupted time-series analysis utilizing mean daily costs preintervention and postintervention Retrospective matched cohort analysis comparing PC to UC patients, added to increase financial comparison of matched cohort Analysis of symptom control after consultation	-Outcomes Mean daily patient costs and LOS Pain, dyspnea, and secretions -Instruments Pain assessed using Edmonton Symptom Assessment Scale Dyspnea and secretions assessment scores assessed using a 3-point scale Karnofsky scores also captured Auto Regressive, Integrated, Moving Average (ARIMA) modeling used to for economic analyses in pre-/post-palliative care consult design, then hospital admin claims linked to cost-accounting data software Trendstar to collect clinical and financial data	Following PC consult decrease of \$892 or 33% in average total cost/day" was observed (p. 1351) "Decreasing costs postintervention were further validated by the identification of a significant level-shift outlier ($p < .01$, one-tailed test)" (p. 1351) "Patients had sig. fewer charges associated with services in the ICU ($p < .01$)" (p. 1351) "Mean daily costs for pts who received PC consultation were 14.5% lower than" usual care ($p < .01$) (p. 1352) Total costs per admission were 19.2% lower for intervention patients compared to" usual care ($p < .001$) (p. 1352) Clinical outcomes noted a decrease in reported scores of pain (86%), dyspnea (64%), and secretions (87%) from time of initial assessment to discharge for pts who received PC referrals (p. 1352)	Sig. decrease in costs following PC consultation translating to annual cost savings of \$2.2 million (p. 1353) Cost reduction a result of clarity in pt goals of care "as demonstrated by an independent chart review and supported by shifts in costs following a consultation associated with shifts in unit type, e.g., decreased days in ICU, and increased use of pharmacy and physical and occupational therapies" (p. 1353) "Reduction in average time to PC consultation referral from 14 days in 2004 to 7 days in 2006 representing a 50% reduction" (p. 1354)	-Recommendations Further studies to determine the "individual factors influencing cost reductions and the identification of patient sub-populations most impacted by these programs" (p. 1354) RCTs of PC would offer a "more definitive test of the clinical and financial benefits" (p. 1354) "Reimbursement policies encouraging early PC consultation for appropriate patients should be considered and assessed" (p. 1354)	IV

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Desbiens, N. et al. (1999)	Authors evaluated the association between symptom burden and the severity of illness	Hospitalized adults (N = 1,582) at five university-affiliated hospitals across the U.S. with one or more of nine common, high-mortality disease categories were enrolled in large national study of prognosis, symptom experience, and decision making in the seriously ill (Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments [SUPPORT])	Quasi-experimental research study Assessed five patient symptoms Likelihood ratio chi-square test used to compare between groups of unordered categorical variables, and Mann-Whitney tests for non-normally distributed continuous variables and categorical variables Frequency and severity of symptoms collected a median of 8 days following hospital admission Patient demographic data, functional status and quality of life ratings gathered via interview 3-6 days following hospital admission Exclusion criteria Pts with AIDS, died within 48hrs after admission, scheduled for discharge within 72hrs of admission, pregnant, had trauma (except for acute respiratory failure and multiple organ system failure), or did not speak English	-Dependent variables Age, race, gender, insurance status, income, presence of surrogate, educational level -Independent variables Pain, dyspnea, depression, and anxiety Reported quality of life, number of comorbidities, SUPPORT physiology score, SUPPORT coma score, hospital day of study enrollment, day of interview after study admission, SUPPORT survival probability at 2 months, disease group, presence of diabetes, presence of dementia, study site, physician specialty, and where the interview was conducted -Instruments Likelihood ratio Chi-squared test used for comparisons between groups of unordered categorical variables Mann-Whitney tests used for non-normally distributed continuous variables and categorical variables	Patients with high-mortality illnesses reported a poorer quality of life ($p < .001$). Patients who reported experiencing a fair or poor QoL were nearly two to four times as likely to report greater symptom burden than patients who reported an excellent QoL (OR = 2.16, 95% CI [1.28, 3.67], OR = 3.92, 95% CI [2.23, 6.90], respectively)	Seriously ill patients with common high-mortality illnesses are more likely to experiencing a diminished QoL and have a higher level of symptom burden (i.e. pain & dyspnea) Study shows need to improve symptom management in patients with high-mortality illnesses	Decreased QoL & Increased Symptomatology associated with poor symptom management -Recommendations Further studies of multiple symptoms in various patient populations Further studies on strategies to manage symptom burden in these pts -Limitations "Details concerning data collection, error-checking, and reliability testing have been reported" (p. 249) Limited symptom data collection may have underestimated symptoms that were worse sooner in hospitalization	III

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Gade, G. et al. (2008)	Authors measured the effects that an IPCS had on patient satisfaction scores, clinical outcomes, and cost of care for six months following hospital discharge	N = 512, total (n = 275, IPCS) (n = 237, usual care) patients diagnosed with at least one life-limiting diagnosis from hospitals in Denver, Portland, and San Francisco completed the study that took place June 2002 to December 2003	Three-site, prospective, randomized control trial "Comparing outcomes of an IPCS to usual care in patients hospitalized with a life-limiting illness" (p. 181) Patients were included if their attending physician answered "no" when asked if they would "be surprised if the patient died within 1 year" (p. 181)	Inpatient satisfaction was measured using the Modified City of Hope Pt Questionnaires (MCOHPQ) Place of Care Environment scale and the Doctors, Nurses/Other Care Providers Communication scale where a large score denotes greater satisfaction "Costs were computed for all health services used within the 6 months following index hospitalization discharge. These services included emergency department, clinic, hospital outpatient, and home health visits, hospital readmissions, skilled nursing facility admissions, and pharmacy fills" (p. 183)	"The IPCS group reported higher mean satisfaction for both the Place of Care Environment scale (IPCS: 6.8, UC: 6.4, $p < .001$) and the Doctors, Nurses/Other Health Care Providers Communication scale (IPCS 8.3; UC: 7.2, $p < .001$)" (p. 186) "IPCS patients had sig. longer median hospice stays than UC participants (IPCS: 24 days; UC: 12 days, $p = .04$)" (p. 185) "Net savings was \$4,855 per patient. Cost savings were largely driven by a significant difference in hospital readmission costs (IPCS: \$6,421 per patient versus UC: \$13,275 per patient, $p=.009$)" (p.186). "IPCS patients had sig. fewer ICU stays on readmission (IPCS: 12; UC: 21, $p = .04$)" (p. 186) "IPCS patients completed sig. more ADS at hospital discharge than UC patients (91.7% vs. 77.8%; $p < .001$)" (2008, p. 185)	"This study provides evidence for the positive impact of IPCS consultations on satisfaction with care and decreased health care costs. It also contributes new information on the impact of this service on ICU admissions and hospice utilization. Based on this data, all three sites are continuing to offer palliative care to hospitalized members. In addition, the integrated health plan is implementing new IPCS programs nationally" (p. 188) No change in mortality observed among groups	Increased pt satisfaction Decrease in mean health care costs partially due to a decrease in the use of ICU admission Pt given more autonomy when making decisions regarding their care in a context that is appropriate for their illness -Limitations Study claims significant decrease in ICU readmissions despite ICU admission data only available for two sites (p. 183) The authors state two other limitations including failing to measure how symptoms and issues were affected by the IPCS, and that since study participants had access to an integrated medical system because of their health care benefits "limiting the generalization of study outcomes in other settings" (p. 188)	II

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Hua, M. et al. (2018)	“Determine the overall effectiveness of specialized palliative care for critically ill patients by examining the relationship between the availability of hospital-based palliative care services and marker of treatment intensity on a population level” (p. 1068)	Treatment-intensity outcomes N=1,025,503, total number of pts with first hospitalization in ICU n=814,794 (79.5%) admitted to hospital with PC program Dose-response analysis n=210,709, pts received care in hospitals w/o PC (“never” hospitals) n=54,434, pts received care in hospital the year following PC development (“nascent” hospitals) n=760,360, pts received care in hospital with mature PC program (“mature” hospitals) n=42,572, subgroup of critically ill pts with metastatic cancer	Retrospective cohort study utilizing Multilevel regression, adjusting for hospital as a random effect Negative binomial regression used for ordinal outcomes Logistic regression used for binary outcomes	Database management and statistical analysis performed using SAS 9.4 software (SAS Institute) and Stata 13.1 software (StataCorp LP) -Independent variable Availability of Hospital-based PC -Dependent variables -Primary outcome Hospital LOS -Secondary outcomes ICU LOS Use of mechanical ventilation, dialysis, placement of tracheostomy or gastrostomy tube, enteral or parenteral nutrition, cardiopulmonary resuscitation, discharge to hospice, and in-hospital mortality	-Treatment-intensity outcomes “Patients in hospitals with a palliative care program were more likely to be discharged to hospice (1.7% vs. 1.4%, aOR = 1.46, 95% CI [1.30-1.64], p<.001)” (p. 1069) -Dose-response outcomes Significant increase in discharge to hospice observed for “mature” hospitals (aOR = 1.48, 95% CI [1.14-1.92], p =.04) (p. 1070) Significant increase in discharge to hospice observed for “nascent” hospitals compared to “never” hospitals (aOR =1.45, 95% CI [1.28-1.64], p<.001) (p. 1070) Significant increase in discharge to hospice observed among metastatic cancer subgroup (aOR =1.35, 95% CI [1.10-1.66], p=.005) (p. 1070)	“Significant association between the availability of hospital-based PC and discharge to hospice observed (p. 1070) “Data suggests that availability of specialized PC for critically ill pts may facilitate use of hospice facilities as opposed to decreasing resource use during the acute care episode... demonstrating that use of specialized PC can decrease downstream health care use” (p. 1070) Specialized PC may lower nonbeneficial resource use in critically ill with increased use of hospice Mortality during hospitalization unchanged between groups	Multiple sensitivity analyses demonstrate reproducibility -Limitations Hospital-level exposure for specialized PC may have caused type II error Inability to account for variability among PC programs may have affected outcomes “Outcomes do not capture many of the benefits of specialized PC, including improvements in quality of life, communication, symptom control, and patient/family satisfaction” (p. 1071) -Recommendations “focus on developing methods to identify individual receipt of specialized PC on a population level, identifying characteristics associated with effective PC programs, improving ways to assess the effectiveness of programs, and determining which critically ill patients may benefit most” (p. 1071)	IV

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
Kupensky, D. et al. (2015)	"Purpose of this project was to evaluate the impact of PMC on geriatric pts' outcomes after the implementation of an institutional practice management guideline requiring PMC on or before post-trauma day 2" (p 262)	Regional level I trauma center in Northeast Ohio N=202, total n=99, number of pts receiving PC	Retrospective, descriptive, correlational study Analyses included descriptive statistics, analysis of variance, and chi-square test Statistical significance established with α of 0.05 -Inclusion criteria Pts ≥ 65 yo, admitted to trauma services in the surgical ICU between July 1, 2013 and November 30, 2014 -Exclusion criteria Pts < 65, not admitted to surgical ICU, or expired w/24hrs of hospital admission Discharge disposition grouped by the patients implied level of function at discharge (Home-rehab, SNF-LTAC, death-hospice)	Data entered in Microsoft Excel 2010 (Microsoft Corporation) and transferred into SPSS statistics 22.0 (IBM Corp) for analysis -Independent PC consult -Dependent Pain, constipation, nausea/vomiting, and anxiety/agitation	"Pts with a PMC were sig. more likely to have a documented advance directive discussion (93.1% vs 39%, $p < .001$) and a code status update or change (84.5% vs 15.5%, $p < .001$)" (p. 262) Reduction in hospital LOS for pts with a PC service on or before post-trauma day two ($M = 7.92$ days vs $M = 13.11$ days; $p = .001$), and an overall reduction in surgical intensive care LOS for pts with a PC service on or before post-trauma day two as well ($M = 6.40$ vs days vs $M = 11.81$ days; $p = .001$) (p. 262) "Pts who received a PMC were sig. older than those without ($m = 82.47$ vs 75.29 , $p < .001$)" (p. 262) "Pts with a PMC had better symptom management than pt without a PMC (3.65 out of 4 symptoms vs 3.47 out of 4 symptoms, $p = .023$)"	48% eligible pts received PC, average time to consultation of ~ 3 days supports underutilization of early PC in ICU (pp. 263-264) Sig. more documented AD discussions/code status updates, PMC by PTD 2 cut ICU and total hospital LOS by ~ 1 week (p. 236) Symptoms better managed in PC pts (p. 263) Reduction of resources implied by increases of AD discussions, reduced ICU LOS (p. 264) Pts with PC were sig. older, had sig. higher ISS, and had sig. higher death rate vs pts with no PC. Implies PC used as hospice, rather than complimentary to trauma." (p. 264) Mortality rate 20% overall	-Recommendations "Education regarding the benefits and misconceptions of PM should be presented to all patient care team members" (p. 264) "Inclusion of PM in all aspects of geriatric care should be encouraged by institutional leadership as well as governing, regulatory, and accrediting agencies" (p. 264) -Strengths Good statistical analysis -Limitations Retrospective nature Limited geriatric trauma population used in sample Advance directive discussions may have occurred that went unreported in chart documentation	IV

Citation	Purpose	Sample/ Setting	Design/ Framework	Variables/ Instruments	Results	Implications	Comments	**Level of Evidence
White, D. et al. (2018)	Assess the outcomes that a multicomponent family-support intervention has on the surrogates' long-term burden of psychological symptoms, quality of decision making and clinician-family communication, and ICU LOS	Five ICUs at five hospitals in the UPMC Health System N = 1420, total n = 1106, surrogates who agreed to be contacted for long-term follow-up n = 809, surrogates who completed long-term follow-up	Multicenter, stepped-wedge, cluster-randomized control trial Inclusion criteria Age ≥ 18 Lack of decision-making capacity as judged by the patient's attending < 1 clinical characteristic: mechanical ventilation > 4 days, ≥ 40% estimated chance of death during hospitalization as judged by attending, or ≥ 40% estimated chance of severe long-term functional impairment as judged by attending Exclusion criteria Lack of pt surrogate Receiving comfort care at time of enrollment Excluded surrogates < 18yo, or unable to read or understand English	-Independent variable Multicomponent family-support intervention delivered by ICU team -Dependent variables surrogates' long-term burden of symptoms, quality of decision making, clinician-family communication, ICU LOS -Control: Usual care -Surrogate Instruments Anxiety/depression assessed by mean HADS score, PTSD by mean IES score, clinician-family communication by mean QOC score, patient- and family-centeredness of care by mean PPPC score -Pt Instruments Severity of illness in ICU assessed with the modified SAPS III, Comorbidities with Elixhauser, Comorbidity Index score, Katz Index of Independence in ADL assess pt's vital status at 6-month f/u, pts lost to f/u at 6mnts, vital status determined by Social Security Death Master File	Surrogates' quality of clinician-family communication sig. improved with intervention (mean QOC score, 69.1 vs 62.7; beta coefficient = 6.39; 95% CI [2.57-10.20], p = .001) Surrogates' rating for patient- and family-centeredness of care (mean modified PPPC, 1.7 vs 1.8; beta coefficient, -0.15; 95% CI [-0.26, -0.04], p = .006) (p. 2370) Mean ICU LOS sig. shorter in intervention group (6.7 days vs 7.4 days; incidence rate ratio = 0.90; 95% CI [0.81, 1.00], p = .045) (p. 2370) Mean LOS in hospital where ICU located sig. shorter in intervention (10.4 days vs 13.5 days; incidence rate ratio, 0.77; 95% CI [0.69, 0.87], p < .001) (p. 2370) No sig difference between the groups in 6-month mortality or percentage of patients living independently at home at 6 months (3% for both)	Intervention did not sig. affect surrogates' burden of psychological symptoms at 6 months Surrogates' ratings of quality of communication and the patient- and family-centeredness of care were better with intervention Length of stay in the ICU was shorter with the intervention	-Recommendations Insight of comparative effectiveness and scalability of study's approaches to family support in the ICU -Strengths Intervention grounded in theory, low cost, aligns with recommendations regarding pts in ICU Authors developed intervention easily disseminated in hospitals Robust statistical analysis performed -Limitations Not a true PC study Large sample limited to one region Imbalances between treatment groups occurred, due to differences in pt demographics among limited number ICUs Possibility of a Type I error – However, authors chose small number of prespecified outcomes, and positive findings highly sig.	II

Note. A $p < 0.05$ is a statistically significant value. Abbreviations: AD = advance directive, APRN = advanced practice registered nurse, ED = emergency department, EMR = electric medical record, FS-ICU = Family Satisfaction in the Intensive Care Unit scale, HMO = health maintenance organization, ICU = intensive care unit, IP = inpatient, IPCT = inpatient palliative care consultative service, LOS = length of stay, PC = palliative care, PCT = palliative care team, PHQ-8 = Patient Health Questionnaire depression scale, Pt(s) = patient(s), PTSD PCL-C = Post-Traumatic Stress Disorder Checklist-Civilian, QODD-1 = Quality of Death and Dying scale, RCT = random control trial, QoL = quality of life, Sig = significant, SNF = skilled nursing facility, US = usual care

****Type/Levels of Evidence:**

Level I: Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence-based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results.

Level II: Evidence obtained from at least one well-designed RCT (e.g. large multi-site RCT).

Level III: Evidence obtained from well-designed controlled trials without randomization (i.e. quasi-experimental).

Level IV: Evidence from well-designed case-control or cohort studies.

Level V: Evidence from systematic reviews of descriptive and qualitative studies (meta-synthesis).

Level VI: Evidence from a single descriptive or qualitative study.

Level VII: Evidence from the opinion of authorities and/or reports of expert committees.

This level of effectiveness rating scheme is based on: Ackley, B. J., Swan, B. A., Ladwig, G., & Tucker, S. (2008). *Evidence-based nursing care guidelines: Medical-surgical interventions*. (p. 7). St. Louis, MO: Mosby Elsevier.

APPENDIX C
National Coalition for Hospice and Palliative Care
Guidelines Agree II Appraisal (Brouwers et al., 2010)

Domain	Item	AGREE II RATING (Strongly Disagree) 1 to 7 (Strongly Agree)
<p>1</p> <p>Scope and Purpose</p>	<p>1. The overall objective(s) of the guideline is (are) specifically described.</p> <p>Comments:</p> <p>The objectives are clearly stated, and the purpose of the guideline (National Coalition for Hospice and Palliative Care, 2018) is clear to the reader, easy to find, and well written.</p> <p>"Specifically, the purpose of the NCP Guidelines, 4th edition, is to promote access to quality palliative care, foster consistent standards and criteria, and encourage continuity of palliative care across settings" (p. v).</p>	7
	<p>2. The health question(s) covered by the guideline is (are) specifically described.</p> <p>Comments:</p> <p>The clinical question is stated within the goal of the guideline (National Coalition for Hospice and Palliative Care, 2018) and includes the definitions of the target population, exposure (improved access to palliative care), and setting.</p> <p>"The goal of the 4th edition of the National Consensus Project's Clinical Practice Guidelines for Quality Palliative Care (NCP Guidelines) is to improve access to quality palliative care for all people with serious illness regardless of setting, diagnosis, prognosis, or age" (p. v).</p>	7
	<p>3. The population (patients, public, etc.) to whom the guideline is meant to apply is specifically described.</p> <p>Comment:</p> <p>The language specifies a clear description of the population to be covered by the guideline (National Coalition for Hospice and Palliative Care, 2018).</p> <p>"Palliative care is inclusive of all people with serious illness, regardless of setting, diagnosis, prognosis, or age" (p. vii).</p>	7
<p>2</p> <p>Stakeholder Involvement</p>	<p>4. The guideline development group includes individuals from all the relevant professional groups.</p> <p>Comment:</p> <p>In the acknowledgments section, there is a list of representatives that includes two cochairs of the National Consensus Project Steering Committee and two co-chairs of the Writing Workgroup, the writer/editor, 18 steering committee members, 16 writing workgroup members, 4 staff members and consultants, ten members of a systematic literature review team which was conducted by the RAND Evidence-based Practice Center, and a six-member technical expert panel supporting the systematic review. This list of individuals is well organized by the description</p>	7

	of the member's role in their guideline development group and includes names, credentials, and institutions from a variety of organizations that oversee specialties such as hospice, palliative, nursing, social work, chaplaincy, long-term care, physician assistants, and medicine.	
	<p>5. The views and preferences of the target population (patients, public, etc.) have been sought.</p> <p>Comment:</p> <p>Views and preferences of the target population were sought out for use in this guideline and described in the National Consensus Project Stakeholder Strategic Directions Summit report (National Coalition for Hospice and Palliative Care, June 2017). The palliative care philosophy and a systematic review were also utilized to synthesize evidence for each domain.</p> <p>"An NCP Stakeholder Strategic Directions Summit was held June 29-30, 2017 in Chicago IL, to bring together key national organizations to discuss and define essential elements of quality primary and specialty palliative care services in the community. The Summit was attended by 58 representatives from 43 national/regional organizations, that covered a broad range of care settings, provider associations, accrediting bodies, payers, and community services organizations" (p.1).</p>	6
	<p>6. The target users of the guideline are clearly defined.</p> <p>Comment:</p> <p>"The audience for the 4th edition of the NCP Guidelines includes specialty hospice and palliative care practitioner and teams, as well as health systems, primary care and specialist physician practices, cancer centers, dialysis units, long-term care facilities, assisted living facilities, Veterans Health Administration providers, home health and hospice agencies, prisons, and other care providers. the NCP Guidelines are also applicable to social service agencies, homeless shelters, and any other community organizations serving seriously ill individuals" (p. v).</p>	7
3 Rigor of Development	<p>7. Systematic methods were used to search for evidence.</p> <p>Comment:</p> <p>Appendix IV of the Guidelines (National Coalition for Hospice and Palliative Care, 2018) details the methodology utilized under the systematic review process, search term iterations specific to each domain, and relevant databases. Review and inclusion process were also discussed.</p> <p>"This systematic review used Academic Search Complete, AgeLine, Alt. HealthWatch, CINAHL Complete, Health Source: Consumer Edition; Health Source: Nursing/Academic Edition, MEDLINE, PsychArticles, Psychology and Behavioral Science Collection, PsychInfo, and Social Work Abstracts databases to search for evidence-based literature across the eight domains as listed within the Clinical Practice Guidelines for Quality Palliative Care, 3rd edition" (p. 87).</p> <p>"A three-stage review process was used to determine whether or not articles were included in the final bibliography. During the first-stage, all titles and abstracts were reviewed for relevancy based on the article title. During the second stage, abstracts of the</p>	7

	<p>remaining articles were read. At the third-stage, writers requested articles to review to determine if the article was applicable to the domain content” (p. 90).</p> <p>The supplemental systematic review protocol (Ahluwalia et al., 2018) also discusses the search strategy used, including ten key review questions developed with the help of the technical expert panel and the time periods that the searches took place (February 7, 2018 to July 30, 2018).</p> <p>"An experienced evidence-based practice center librarian will design and execute the searches, informed by content and methodology experts. For each review question, we will develop targeted search strategies. All searches will be limited to English language publications from 2013 (i.e., after the 3rd edition of the NCP Guidelines was published) to date to ensure a feasible project in the given timeframe and available resources. However, eligible studies include existing systematic reviews and these reviews will summarize literature older than 2013 and may include non-English publications" (p. 2).</p>	
	<p>8. The criteria for selecting the evidence are clearly described.</p> <p>Comment:</p> <p>The database search utilized by the systematic review authors (Ahluwalia et al., 2018) “was limited to peer-reviewed journal articles published between January 1, 2007 and September 17, 2017” (p. 87). Extensive details about criteria such as target population, type and method of review, condition or domain to be studied, intervention(s), exposure(s), comparator(s) or control, outcomes, data extraction, analysis of subgroups or subsets, and language have been included in the systematic review authored by Ahluwalia et al., (2018, pp. 3-7).</p>	7
	<p>9. The strengths and limitations of the body of evidence are clearly described.</p> <p>Comment:</p> <p>Ahluwalia et al., (2018) describe how the body of evidence was evaluated for bias and interpreted in the systematic review. Aspects which frame the descriptions of how the body of evidence was evaluated are also detailed.</p> <p>"Risk of bias (quality) assessment- We will use an explicit and transparent approach to assess the methodological quality of the research studies meeting inclusion criteria. The critical appraisal will assess the study limitations and risk of bias for the reported results. The assessment will be clearly documented to inform the interpretation of the results of the study and its application to the guideline. We will select critical appraisal tools based on the employed study designs. We will use existing tools adapted to the palliative care context where necessary. Critical appraisal dimensions for systematic review will include the following: • Explicitly stated review questions • Appropriate inclusion criteria and search strategy • Adequate sources and multiple databases searched • Critical appraisal of included studies • Data abstraction procedure and steps taken to minimize errors • Appropriate methods used to combine studies • Other, topic and context specific criteria (e.g., applicability of the results to the palliative care review question). Individual studies will be assessed for</p>	7

	selection bias and confounding, performance bias, detection bias, attrition bias, and other (e.g., study specific) sources of bias" (p. 5).	
	<p>10. The methods for formulating the recommendations are clearly described.</p> <p>Comment:</p> <p>Ahluwalia et al., (2018) carried out a systematic review that initially identified 3454 citations. They then identified 139 systematic reviews that met their inclusion criteria. The systematic review was supported by a technical expert review, is registered in PROSPERO, and followed PRISMA guidelines. A descriptive synthesis and quality of the evidence was assessed following a search, screening, data extraction and critical appraisal process. Each included study is clearly documented in the evidence tables, results across studies were documented in the appropriate tables. "Evidence tables were created to allow a transparent and accessible overview and structure the available study details and results for all included studies. We summarized findings organized by KQ, intervention type, study population/age group (e.g., pediatric vs. adult), setting (e.g., inpatient vs. outpatient), and outcome in a Summary of Findings table. We assessed the quality of evidence using the Grading of Recommendations, Assessment, Development and Evaluations framework. The Grading of Recommendations, Assessment, Development and Evaluations framework allows for a transparent overview using internationally accepted criteria to differentiate high, moderate, low, and very low quality of evidence to describe confidence in the findings among studies. We downgraded for study limitations (e.g., no randomized controlled trials contributing to the evidence), inconsistency in results across studies or lack of replication, imprecision (e.g., due to lack of reported effect estimates or imprecise estimates). We used the assessment of the systematic reviews evaluating the evidence base regarding indirectness, publication bias, or other criteria where applicable" (p. 833).</p>	7
	<p>11. The health benefits, side effects and risks have been considered in formulating the recommendations.</p> <p>Comment:</p> <p>The Clinical Practice Guidelines for Quality Palliative Care address these criteria with the following statements. "The NCP Guidelines set expectations for excellence among clinicians treating patients with serious illness rather than basic competence levels for professionals, teams, and organizations" (p. v). "The expectation is that other clinicians caring for seriously ill patients will integrate palliative care competencies (such as safe and effective pain and symptom management, and expert communication skills) in their practice and palliative care specialists will provide expertise for those with the most complex needs" (p. v).</p> <p>No other statements were found describing the consideration of health benefits, side effects, or risks during the formulation of the guideline recommendations.</p>	6
	<p>12. There is an explicit link between the recommendations and the supporting evidence.</p>	7

	<p>Comment:</p> <p>There is a direct link between the recommendations and the supporting key research evidence that is described at the end of each domain. An evidence table, located in the systematic review (Ahluwalia et al., 2018), summarizes the key findings of each included review. A summary of findings table, also located in the systematic review, summarizes the research evidence from each review and describes the quality of evidence.</p>	
	<p>13. The guideline has been externally reviewed by experts prior to its publication.</p> <p>Comment:</p> <p>The guideline was externally reviewed using the Grading of Recommendations, Assessment, Development and Evaluations criteria by the Evidence-based Practice Center located at RAND (Ahluwalia et al., 2018). A technical expert panel consisting of one steering committee co-chair and two writing workgroup members (one being a co-chair) supported the systematic review. An extensive summary of key findings can be found in the accompanying systematic review (Ahluwalia et al., 2018, pp. 834-862)</p>	7
	<p>14. A procedure for updating the guideline is provided.</p> <p>Comment:</p> <p>A process for the review of new evidence or an update to the guidelines is not found anywhere in the guideline itself or any of the supplements.</p>	1
4 Clarity of Presentation	<p>15. The recommendations are specific and unambiguous.</p> <p>Comment:</p> <p>The recommendations within this guideline are written in a specific and unambiguous manner. They are precise and divided into eight domains with corresponding guideline recommendations, criteria, clinical and operational implications, essential palliative care skills needed by all clinicians, key research evidence, and practice examples.</p>	7
	<p>16. The different options for management of the condition or health issue are clearly presented.</p> <p>Comment:</p> <p>Clearly written recommendations are provided with descriptions of populations and clinical situations when applicable. Alternatives are clearly written for recommendations when applicable.</p>	7
	<p>17. Key recommendations are easily identifiable.</p> <p>Comment:</p> <p>A summary of key revisions for each domain is provided at the beginning of the guideline (p. viii). However, no executive summary or conclusion could be found within the guideline itself. A summary of the findings can be found in the discussion narrative of the systematic review of the evidence (Ahluwalia et al., 2018, p. 863-864).</p>	6
5 Applicability	<p>18. The guideline describes facilitators and barriers to its application.</p> <p>Comment:</p>	6

	<p>Considerations are included in the National Consensus Project Stakeholder Strategic Directions Summit (2017) report. They address emerging key themes from the summit, recommendations for the structure of the guidelines, and specific domain considerations (pp, 9-12). However, the guidelines themselves do not cover specific facilitators or barriers to implementation such as cost implications or reimbursement issues regarding Palliative Care across settings.</p>	
	<p>19. The guideline provides advice and/or tools on how the recommendations can be put into practice.</p> <p>Comment:</p> <p>A vast list of tools and resources are listed by domain and available in Appendix II of the guidelines (National Coalition for Hospice and Palliative Care, 2018, pp. 70-84). The NCP also lists the groups that comprise their coalition with their corresponding websites, all of which offer tools and advice on implementing palliative care across a wide variety of specialties and settings.</p>	7
	<p>20. The potential resource implications of applying the recommendations have been considered.</p> <p>Comment:</p> <p>The National Consensus Project Stakeholder Strategic Directions Summit (2017) report recommended adding financial issues to Domain 8: Ethical and Legal Aspects of Care (p. 12). Two criteria within the guidelines (National Coalition for Hospice and Palliative Care, 2018) mention recommendations regarding financial issues.</p> <p>"8.1.10 Social justice principles and costs of care are considered in the allocation of resources across all populations to improve the health outcomes of seriously ill people and address health care disparities" (p. 53).</p> <p>"8.4.8 The IDT educates the patient and family regarding the cost of care and financial burdens associated with treatment options" (p. 56).</p>	6
	<p>21. The guideline presents monitoring and/ or auditing criteria.</p> <p>Comment:</p> <p>There are specific guidelines and criteria that specify audit criteria or quality indicators throughout the guidelines. An excellent example is found under Guideline 1.9, Continuous Quality Improvement.</p> <p>"In its commitment to continuous quality improvement (CQI), the IDT develops, implements, and maintains a data-driven process focused on patient- and family-centered outcomes using established quality improvement methodologies" (p. 7).</p>	7
6 Editorial Independence	<p>22. The views of the funding body have not influenced the content of the guideline.</p> <p>Comment:</p> <p>While the systematic review authors (Ahluwalia et al., 2018) endorse sponsorship from the National Coalition for Hospice and Palliative Care and their funders, they also explicitly acknowledge that they are solely responsible for the content of the review (i.e., the methods, findings, and conclusions). They also state that this content does not represent the views of the technical expert panel</p>	7

	or the National Coalition for Hospice and Palliative Care (pp. 864-865).	
	<p>23. Competing interests of guideline development group members have been recorded and addressed.</p> <p>Comment:</p> <p>The guidelines (National Coalition for Hospice and Palliative Care, 2018) state that no members of either the Writing Workgroup or the Steering Committee disclosed any relationships constituting a conflict of interest (p. xiv). The systematic review (Ahluwalia et al., 2018) discloses a conflict of interest for one of its authors from the RAND corporation.</p> <p>"Dr. Lorenz is serving as a consultant to Otsuka Pharmaceuticals for data monitoring and safety in the evaluation of a Phase II trial of Sativex, a novel cannabinoid analgesic. All other authors report no potential conflicts of interest" (p. 865).</p>	6
Overall Guideline Assessment	1. Rate the overall quality of this guideline.	6.47
	<p>2. I would recommend this guideline for use.</p> <p>Notes:</p> <p>The National Coalition for Hospice and Palliative Care (2018) has provided a thorough guideline with extensive criteria that is backed up by a well-designed systematic review performed by a reputable external group. Resources are also provided via Appendix II of the clinical guidelines. The coalition partners' websites also offer many types of resources as well such as toolkits for initiating palliative care in the ICU and clinical training resources.</p>	<p>*Yes*</p> <p>Yes, with modifications</p> <p>No</p>
Domain 1 Scope and Purpose	1. The most robust domain within the guideline. Overall aim, health questions, and target population of the guideline were described with clarity.	7
Domain 2 Stakeholder Involvement	2. While the stakeholders have incorporated many voices that strengthen the documents objectivity, there are some specialty provider and patient perspectives missing.	6.66
Domain 3 Rigor of Development	3. While the process utilized to gather and synthesize the evidence and the methods used to formulate the guidelines recommendations were robust, there were little detail within the guidelines regarding risks of intervention or methods with which the guidelines are to be updated.	6.12
Domain 4 Clarity of Presentation	4. While key recommendations are not presented, the structure and format of the guidelines are clearly presented and easy to navigate by the reader.	6.66
Domain 5 Applicability	5. Barriers to application were not thoroughly discussed. Although, many facilitators and resources are highlighted to implement intervention. Potential resource implications are touched upon.	6.5

Domain 6 Editorial Independence	6. The systematic review team had one member reporting a conflict of interest; however, members of the steering committee and the writing workgroup did not have conflicts of interests or disclosures. The funding for the creation of the document was provided within the Acknowledgments section and easily accessible.	6.5
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APPENDIX D

Critical Appraisal of Systematic Report of:

A report from the IPAL-ICU Project Advisory Board and the Center to Advance Palliative Care (Duffy, 2010)

Research Question:

Does the review address a clearly defined issue?

-The objective of the systematic report was to identify the applicability between three different models of Palliative Care for integration in the surgical intensive care, as well as barriers and facilitators of effective Palliative Care integration and its application to adults receiving surgical critical care and their families (pp. 1199-1200).

Does the review describe; population, intervention and outcomes?

-Population: Adult patients receiving surgical critical care and their families.

-Interventions: Three models of Palliative Care, trigger criteria for the initiation of the consultative model of Palliative Care, checklist tools for the continual quality improvement of the integrative model of Palliative Care.

Is the review question clearly and explicitly stated?

-A discussion of the "challenges and strategies to facilitate effective palliative care for adult patients receiving surgical critical care and their families" based upon a relevant review of the literature (p. 4).

Literature Review:

Were comprehensive search methods used to locate studies?

Data extraction & Synthesis: A "critical" review of the literature was performed by an expert Advisory Board with special concern for challenges, strategies, models, and interventions that increase the integration of Palliative Care services for patients admitted to the surgical intensive care unit and their families. A limited explanation of data extraction and synthesis was provided.

Was a thorough search of appropriate databases done?

Data Source: A review of English language articles from 1966-2011 using MEDLINE (PubMed-National Library of Medicine), Key terms included "surgical palliative care' or the terms surgical critical care', 'surgical ICU', 'surgeon', 'trauma' or 'transplant', and 'palliative care' or 'end-of-life care'".

Were other potentially important databases explored?

-Alternative Data Source: An internal review of articles and experiences from the interdisciplinary expert Advisory Board who authored the report was also performed.

Were the search methods thoroughly described?

-No, the search methodology was minimally described by the authors.

Were conclusions drawn about the possible impact of publication bias?

-No conclusions were made regarding the role that publication bias may have possibly played in the systematic report.

Were the overall findings assessed for their robustness in terms of the selective inclusion or exclusion of doubtful or biased studies?

-No data were provided regarding the included study findings and their possible issues with overall bias.

Study Selection:

Were inclusion criteria for selecting studies clearly described and fairly applied?

-Inclusion criteria were not clearly described by the authors, and they utilized personal articles and the experiences of their expert Advisory Board to synthesize the report without explicitly naming these articles or experiences.

Critical Appraisal:

Was study quality assessed by blinded or interdependent raters?

-No, the authors did not blind the raters, or if they did, they did not describe in the report.

Was the validity of included studies assessed?

-No, information regarding the included studies was left solely to the narrative and did not include specific statistical data.

Was the validity of studies assessed appropriately?

-Validity of the studies was not included by the authors.

Are the validity criteria reported?

-Validity criteria were not reported by the authors.

Similarity of Groups and Treatments:

Were reasons given for any differences between individual studies explored?

-Reasons were not provided for differences between the studies reported.

Are treatments similar enough to combine?

-Palliative Care models were the main intervention reported; however, their applicability may vary across critical care settings.

Do the included studies seem to indicate similar effects?

-The included studies show similar effects of barriers, facilitators, and solutions to the integration of Palliative Care services in the intensive care.

If not, was the heterogeneity of effect assessed and discussed?

-Not applicable, see above answer.

Data Synthesis:

Were the findings from individual studies combined appropriately?

-Data from the individual studies were not reported.

Are the methods used to combine studies reported?

-Methods used to combine studies were not reported.

Was the range of likely effect sizes presented?

-The range of likely effect sized was not presented by the authors.

Were null findings interpreted carefully?

-Null findings were reported by the authors in respect to the findings surrounding the use of triggers and their lack of observable increase in Palliative Care consultations (p. 1202).

Were the methods documented?

-The authors did not describe all the pertinent data or methodology utilized in creating and performing this systematic report of the literature.

Are review methods clearly reported?

-The authors only briefly touch on the overall methods utilized to synthesize this report.

Summary of Findings:

Is a summary of findings provided?

-A summary of the findings can be found within the abstract and at the end of the report.

Are specific directives for new research proposed?

-Recommendations for future research include the further study of trigger criteria for the initiation of Palliative Care services for patients admitted to the intensive care unit.

Were the conclusions supported by the reported data?

-Despite the lack of reported statistical data, the conclusions provided in summary and the abstract were supported by the evidence laid out in the narrative of the report.

Are the recommendations based firmly on the quality of the evidence presented?

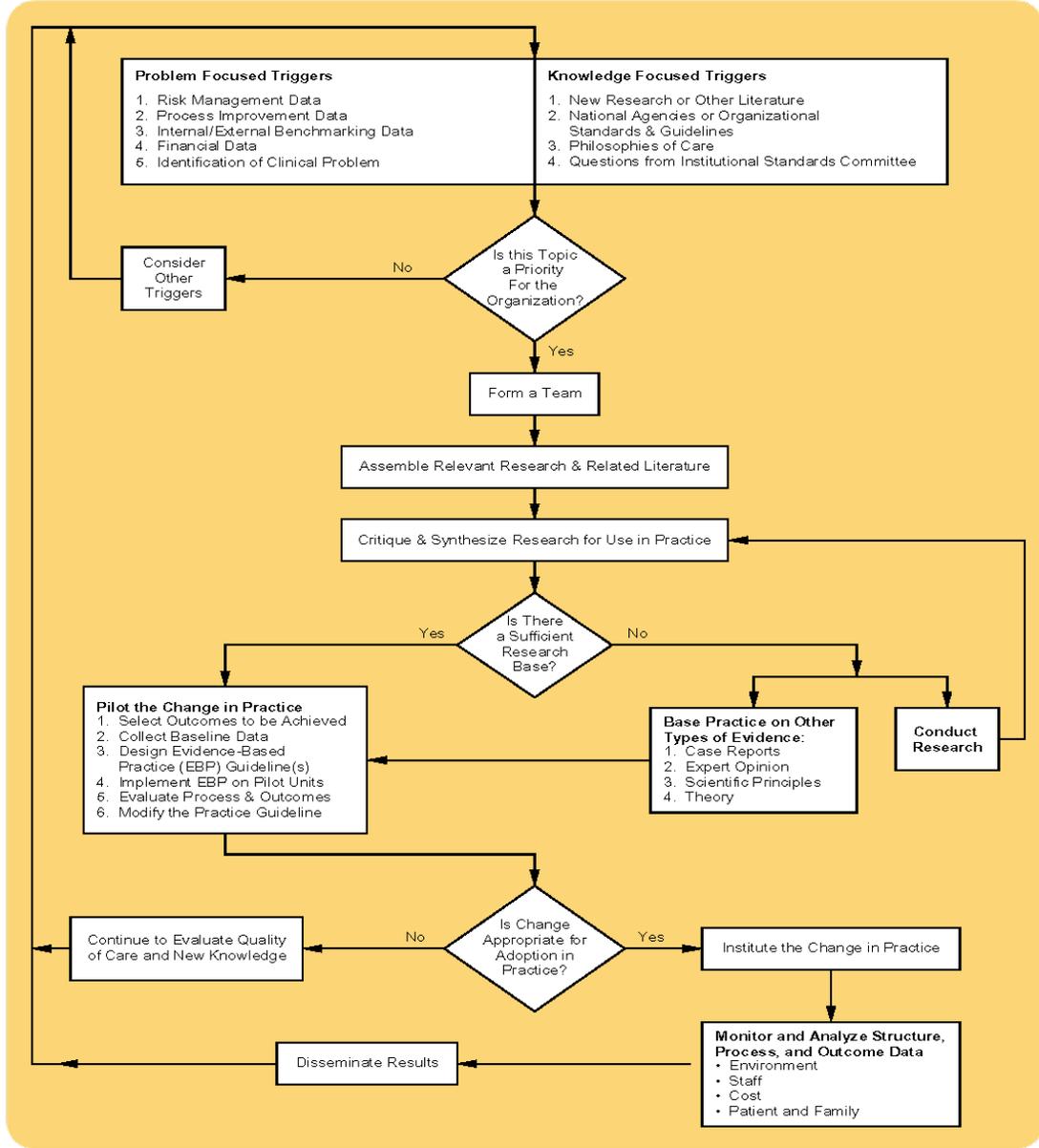
-Quality of the evidence is difficult to surmise given the lack of overall data provided by the authors. However, given the prestige of the reporting body and the quality of the research included in general, there are strong indications that the recommendations provided by the systematic report are based on the quality of the evidence presented.

Duffy, M. E. (2005). Systematic reviews: Their role and contribution to evidence-based practice. *Clinical Nurse Specialist*, 19(1), 15-17. doi: 10.1097/00002800-200501000-00005

APPENDIX E

Iowa Model of Evidence Based Practice to Promote Quality Care

The Iowa Model of Evidence-Based Practice to Promote Quality Care



◇ = a decision point

Tiller, M.G., Kleiber, C., Steelman, V.J., Rakel, B. A., Budreau, G., Everett, L.Q., Buckwalter, K.C., Tripp-Reimer, T., & Goode C. (2001). The Iowa Model Of Evidence-Based Practice to Promote Quality Care. *Critical Care Nursing Clinics of North America*, 13(4), 497-509.

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Figure 1. The Iowa Model of Research-Based Practice to Promote Quality Care (Used/reprinted with permission from the University of Iowa Hospitals and Clinics, copyright 1998. For permission to use or reproduce, please contact the University of Iowa Hospitals and Clinics at 319-384-9098.)