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Multi-Symptom Management in Hospice Patients during End-of-Life Transition

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by

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Dedication

I dedicate this quality improvement project especially, to my Mom and Dad, Debra and Dr. Olin Marion Burton, for being the best role models and loving parents in the whole world. They are and have been two influential leaders throughout my life and the healthcare community. They have been exceptional leaders and mentors that facilitate my attributions in our healthcare system and their accomplishments motivate me to provide optimal healthcare to the community. Next, I would be honored to send my dedication, love, and sincere gratitude for the continuous support from my husband Cory, all my family members, friends, mentors, and colleagues for all their support and motivation. I also dedicate my passion for this project to the hospice patients and families. Especially those hospice patients and families whom entrusted the honor upon me to care for them during their end-of-life transition. Lastly, I would like to thank the Lord above for without him nothing is possible.

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Abstract

The purpose of this quality improvement project is to compare the provider's perception following an educational model of using single symptom management versus multi-symptom management during the end-of-life transition in adult patients for improved quality of life outcomes. The appraised evidence indicates that it is critical to have anticipatory medications at the patient's residence to manage multiple symptoms rather than focusing exclusively on a single symptom management such as pain management. In February 2016, the author conducted an educational model among hospice providers for increasing knowledge and awareness of multi-symptom management. Thirty (n = 30) Clinical Nursing Directors, Licensed Practical Nurses, Medical Directors, and Registered Nurse Case Managers from hospice organizations located in South Carolina were surveyed pre and post intervention regarding their perception of symptoms, the most prominent distressful symptoms that are experienced by hospice patients, and the pharmaceutical preference to manage distressful symptoms. With a response rate of 77%; (n=23) participants pre-test responses indicated that pain (35%) was the most prominent symptom among patients; Dyspnea/SOB (44%) was identified as the most distressful symptom for patients; and anxiety/restlessness and increased respiratory secretions received (35%) as the most distressful symptoms for

patients' families and/ or caregivers witnessed during a patient's last two weeks of life. Hospice provider's post-test responses indicated that the most prominent symptom was dyspnea/SOB (30%) followed by pain (22%). Additionally, the presence of anxiety/restlessness had increased by almost (10%) in the post-test results (26%). Healthcare providers reported the most distressful symptom for the patient was dyspnea/SOB (44%) with the same response rate both pre-test and post-test. However, the prevalence of pain as the most distressful symptom's response rate decreased from pre-test (17%) to post-test (9%). The presence of perceived increased respiratory secretions response rate increased from pre-test (13%) to post-test (22%). This project was consistent with the evidence that multi-symptom management is critical in end of life transitions and care providers must focus on multi-symptoms rather than single symptom.

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Chapter 1 Introduction

1.1 The Description of Clinical Problem

Approximately 2.5 million people die annually in the United States, and approximately 1.05 million die in a palliative care or hospice care environment. In 1967, the first modern hospice was established by Dame Cicly Saunders with the goal to improve the quality of life for dying people (Anderson & Chojnacka, 2012). Hospice patients experience multiple symptoms in the terminal phase of the dying process, often impairing the quality of life during the end-of-life transition. These symptoms include increased pain, secretions, nausea, dyspnea, and anxiety/restlessness. The most problematic symptoms identified in the terminal phase of death are pain, anxiety, nausea, and increased respiratory tract secretions (Anderson & Chojnacka, 2012; Bishop, Stephens, Goodrich, & Byock, 2009; Sera, McPherson, & Holmes, 2014). To improve the quality of life during the end-of-life transition, evidence indicates that it is critical to have anticipatory medications at the patient's residence to manage multiple symptoms rather than focusing exclusively on pain management (Anderson & Chojnacka, 2012; Bishop et al., 2009; Wowchuk, Wilson, Embleton, Garcia, Harlos, & Chochinov, 2009). During the final days of the dying process, distressful symptoms, especially respiratory tract symptoms, can also emotionally impact the patient's family and loved ones because of increased anxiety and fear. "How people die remains in the memory of those who live

on"; therefore, it is essential to encourage multi symptom management (Anderson & Chojnacka, 2012).

The number of hospice patients and end-of-life operations have rapidly increased over the past several years. According to the National Hospice and Palliative Care Organization in 2012, an estimated 1.5 to 1.61 million patients received services from hospice care and over 5,500 hospice programs exist across the nation (NHPCO, 2013). With an increased demand for hospice services, it is essential for healthcare providers to focus their attention on this vulnerable population and deliver best practice measures to improve their patients' quality of life during the end-of-life transition. Best practices warrant investigation and multi-symptom management for the improvement of hospice patients' quality of life. A continuously evolving healthcare milieu requires increased utilization and application of evidenced-based research for hospice care and end-of-life symptom management. Applying knowledge is obligatory to implement interventions that promote optimal quality comfort measures experienced during the end-of-life transition. Providing palliative care does not allow patients' to elude death, rather it provides them with the autonomy for symptom management and to accept dying as a natural process that deserves complete dignity. Increasing evidence-based research on multi-symptom management, and not just focusing on pain as the only distressful symptom that occurs during the terminal phase of death, is imperative. The purpose of this quality improvement project is to compare the provider's perceptions using an educational model of applying single symptom management versus multi-symptom management during the end-of-life transition in adult patients over 18 for improved quality of life outcomes.

1.2 Scope of problem

First, evidence shows that Hospice patients experience multiple symptoms, not just pain. Sera et al. (2014) reported that the most prominent symptoms encountered in hospice patients at end-of-life were pain, dyspnea, nausea, delirium, anxiety, and depression. These findings paralleled a study by Wowchuk et al. (2009) who reported that retained respiratory secretions and subsequent dyspnea, were the most common causes of distress experienced during the terminal phase by this vulnerable population. The study also demonstrated that the most prominent symptoms addressed in hospice patients were pain, nausea, vomiting, shortness of breath, agitation, confusion, retained respiratory secretions, and weakness (Wowchuk et al., 2009). Johnson, Kassner, Houser, and Kutner (2005) identified that several studies in both hospice and non-hospice environments identified fatigue, not pain, as the most severe and distressful symptom experienced by terminally ill patients.

Despite a myriad of symptoms experience by hospice patients at the end-of-life, hospice care continues to focus on pain management, leaving the other symptoms unaddressed. According to Fleming, Sheppard, Mangan, Taylor, Tallarico, Adams, and Ingham (2006) as death approached in patients diagnosed with cancer, the psychological variables anxiety and depression become more significant than physical symptoms. Dying patients suffer from symptoms that are treatable, many experience serious pain; however, due to less research on other symptoms, evidence suggests a pattern of inadequate symptom management (Kutner, Kassner, & Nowels, 2001). Barriers for effective symptom management differ among different groups of symptoms, symptom specific interventions may be necessary to achieve multi-symptom relief (Johnson et. al,

2005). Quality of life is poor with single symptom management versus multi-symptom management.

Secondly, data indicate that families experience distress with insufficient symptom management. For example, Curtis, Patrick, Engelberg, Norris, Asp, and Byock (2002) identified the perspective of family members after the death of their loved one. Their evidence showed that family members reported anxiety among themselves in dealing with their loved one's symptom management at the end-of-life. There is a lack of research regarding the training or skills required by family caregivers to manage medications at home when dealing with multiple symptoms associated hospice patients during the end-of-life transition (Lau, Kasper, Hauser, Berdes, Chang, Berman, Masin-Peters, Paice, & Emanuel, 2009). According to Lau et al. (2009) evidence suggest that family caregivers feel inadequately prepared to manage hospice patient's medication and symptom control. Most family members are unknowledgeable on the subject of pharmaceutical regimens, they require education in medication and symptom management. Kutner and colleagues (2001) addressed the need to prepare caregivers to administer immediate symptom relief by calling the hospice for directions and utilizing the symptom relief kit when a sudden decline in patient's comfort becomes obvious. The hospice nurse in one study actively discussed with the patient's family members what to expect, what certain symptoms occurred, how to approach the management of particular symptoms, reduce anxieties, and decrease the occurrence of hospitalizations in the hospice patients population (Wowchuk et al., 2009). A similar study demonstrated that hospice agencies must guarantee to patients and their families that symptoms experienced

by the hospice patients will be addressed within the established plan of care (Bishop et al., 2009).

Third, government accountability by CMS (2013) is now requiring that hospice and palliative care organizations utilize and report quality measures in end of life transition environments, otherwise, a reduction in reimbursement will occur for failure to comply. With the evolving changes in the U.S. National healthcare reform, reimbursements and regulatory compliance changes from Centers for Medicare & Medicaid Services (CMS) should be an impetus for all hospice and palliative care organizations to utilize quality measures. According to the CMS (2013), to avoid a reduction in the Annual Payment Determination in 2015, it has been a federal requirement for all hospice agencies as of March 3, 2014 to collect and submit data to CMS for two measures. These methods include structural measures related to the content of their Quality Assessment and Performance Improvement (QAPI) program and the National Quality Forum (NQF) #0209 Pain Measure (CMS, 2013). According to the CMS (2013) structural measures provides CMS with general information about the kinds of patient care related quality indicators (QIs) used in hospice organizations' QAPI programs, an example of patient care related quality indicators may address topics such as symptom management (e.g., pain, dyspnea, nausea, anxiety, depression). Moreover, CMS (2013) the NQF #0209 reflects the number of patients who report being uncomfortable because of pain at the initial assessment (after admission to hospice services) who report that pain was brought to a comfortable level within 48 hours of admission to hospice. Steindal, Bredal, Sorbye, and Lerdal (2011) recommend electronic patient records to implement standardize rating systems for pain and other symptoms to

facilitate a thorough record of data identifying symptoms that occur in dying patients. CMS also reported that each hospice operation that cares for Medicare patients must submit data for both measures to CMS by the deadline April 1, 2014 to comply with reporting requirements (CMS, 2013). These quality of life measures are important because they represent a holistic approach with multi symptom management, thus improve the end of life transition experience for patients and their families.

During the end-of-life transition symptoms and clinical signs in hospice patients serve as the basis for individualized multi-symptom management to improve quality of life (Steindal et al., 2011). Morphine alleviates only two symptoms in hospice patients during the end-of-life transition, pain and dyspnea. Steindal and colleagues (2011) support the management of multi-symptom management for facilitate improved outcomes for patients at the end-of-life transition. Federal agencies require multi-symptom management for reimbursement. Families are expecting multi-symptom management for end of life transition for loved ones. A dilemma that family members face is the moral obligation to alleviate a patient's suffering and the uncertainty regarding the best choice of symptom relief (Brown & Vaughan, 2013).

1.3 Discussion of Practice Innovation/Best Practices to Address the Problem

Evaluation of hospice patients during the terminal phase of dying is essential to address multi-symptom management. Utilizing anticipatory multi-symptom interventions allow the patient's symptoms to be relieved quickly, effectively, and results in improved outcomes and better standards of care (Anderson & Chojnacka, 2012; Kinley, Stone, & Hockley, 2013). Once the symptoms have been identified, the next step is to identify

which medication or intervention can be delivered to yield the best patient outcome and alleviate the symptoms. Comfort care kits or anticipatory medications are often used for hospice patients experiencing episodes of distressing multi-symptoms.

When a patient experiences a symptom, the caregiver is able to administer a comfort medication after notifying the hospice agency first. Comfort care kits contain medications that address multiple symptoms including pain, dyspnea, nausea/vomiting, anxiety/restlessness, agitation/delirium, noisy secretions, and fever. The implementation of multi-symptom management guidelines best integrate standards of care in clinical practice for managing multiple symptoms and improving quality of life during end of life transition (Anderson & Chojnacka, 2012; Wowchuk, et al., 2009).

1.4 Statement of problem/purpose

In adult hospice patients 18 years and over, how does the provider's perception of using multi symptom management following an educational model compare to single symptom management medication improve overall quality of life during the end-of-life transition? The Population (P) are providers managing adult patients in hospice care. The Intervention (I) is the implementation of multi symptom management educational module. The Comparison (P) is the current practice of using single symptom management. The Outcome (O) is effectively managing multi symptoms for improved quality of life during the end-of-life transition in adult patients over 18 in hospice. The most common symptoms during the terminal phase of illness were documented as pain, sickness, agitation, and respiratory tract secretions (Anderson & Chojnacka, 2012). Additional researches suggest the most common symptoms that affect adults during end-

of-life transition include pain, excessive secretions, and terminal restlessness (Kinley et.al, 2013). In this project the following symptoms will be examined: pain, dyspnea, increased secretions, and restlessness for quality of life outcomes. The goal is to enhance comfort and promote the quality of life for individuals and their families during the end of life transition.

Table 1.1: Evidence Based Practice Clinical Question

Population	Intervention	Comparison Intervention	Outcome
Providers	Multi-symptom management	Single symptom management	Improved quality of life and symptom management during end of life transition in adult patients over 18 years of age

1.5 Project Questions

The project was guided by the following clinical questions:

Does the utilization of anticipatory medications prevent delays in symptom management during the dying phase?

What medications alleviate pain best in patients during the end-of-life transition? What evidence identifies optimal pain control in patients?

What evidence identifies the best medications to use in hospice patients with dyspnea, respiratory distress, increased secretions, anxiety and/or restlessness?

What type of educational support do providers and families need to best manage multi-symptoms of their loved ones in hospice care?

What is the quality of life for patients and their families experiencing multi-symptom management?

1.6 Definitions

Hospice has been considered to be the model for quality, compassionate care for people facing a life-limiting illness or injury. Hospice care involves a team-oriented approach to expert health care, pain management, and emotional and spiritual support expressly tailored to the patient's needs and wishes (National Hospice and Palliative Care Organization, 2013). It has been essential for all hospice organizations to focus on maintaining the quality of life through symptom management, healthcare educational support, and ensuring that the patient's dignity remains upheld during the difficult transition into death. There may be a misconception that only patients with stage IV cancer or a prognosis of less than two weeks qualify for end-of-life care. End-of-life care promotes and improves quality of life to patients whose physicians have given them a prognosis of six months or less to live. According to the NHPCO (2010), hospice affirms the concept of palliative care as an intensive program that enhances comfort and promotes the quality of life for individuals and their families; furthermore, hospice recognizes that a peaceful and comfortable death has been an essential goal of health care.

- Hospice is defined as a model for quality, compassionate care for people facing a life-limiting illness that involves a team-oriented approach to expert health care, pain management, and emotional and spiritual support tailored to the individual patient's and loved one's needs and wishes (NHPCO, 2013). Hospice focuses on caring, not curing terminally ill patients that have a prognosis of less than six months to live.
- Adults are defined as individuals 18 years old and over.
- End-of-life care is defined as the promotion and improvement in quality of life to imminent patients, rather than attempting to cure underlying disease in patients whose healthcare providers have given them a prognosis of six months or less to live. End-of-life care requires a holistic approach for those suffering with life limiting illnesses. During this terminal phase of life patient's wish to be comfortable, free of pain, and other symptoms (Klinkenberg, Willems, Wal, & Deeg, 2004).
- Pain is defined as a subjective intolerable discomfort for patients triggered by the nervous system. The onset of pain can occur acutely, intermittent, continuous, or chronic. Pain is identified as one of the most common and distressing symptoms encountered in hospices patients receiving end-of-life care that medications can help alleviate (Rurup, Borgsteede, Heide, Maas, & Onwuteaka-Philipsen, 2009; Zerzan, Benton, Linnebur, O'Bryant, & Kutner, 2010).
- Dyspnea is defined as difficulty breathing, shortness of breath, the feeling of suffocation, and tightness of the chest (Papadakis & McPhee, 2013).

- Increased secretion is defined as secretions that have settled in the upper airways and oropharynx. Noisy, moist, bubbling breathing is heard and is considered an indicator that a person's may be actively dying (Kinley et al., 2013; Kintzel, Chase, Thomas, Vancamp, & Clements, 2009).
- Terminal restlessness is defined as signs of restlessness include tossing, turning, thrashing, agitation, involuntary muscle jerks, or moaning that can occur during the final days or hours for a person (Kinley et al., 2013).
- Multi symptom management is defined as a focus on various discomforts, multi concurrent symptoms, or manifestations experienced by patients.
- Comfort care kits is defined as emergency kits containing anticipatory medications for uncontrolled pain, respiratory distress, restlessness, agitation, and nausea (Bishop et al., 2009).
- Anticipatory Medications are medications ordered for a patient to ensure there is no delay in responding to any symptom that may occur during the end-of-life transition (Kinley et al., 2013).
- Quality of life (QoL) is defined as the final common pathway for hospice care services where healthcare professional reflects an individual's satisfaction with his/her current situation and has been defined as a sense of well-being concerning physical, psychological, social, and spiritual dimensions (Henoch, Bergman, Gustafsson, Gaston-Johansson, & Danielson, 2007).
- Healthcare provider is defined as a doctor of medicine or osteopathy, podiatrist, dentist, chiropractor, nurse practitioner, nurse-midwife, or a clinical social worker

who is authorized; holds a license to practice by the State to deliver patient care within their scope of practice as defined by their State's law.

- Family is defined as a group of individuals related by blood or affection. Members of families can include the following: parents, siblings, grandparents, aunts, uncles, cousins, or close friend that are considered a social unit.
- Palliative care is defined as care aimed to improve the quality of life of patients and their families facing a life-limiting illness (Crang & Muncey, 2008). Palliative care is defined as the active total care of patients whose progressive disease is not responsive to curative treatment and the overall focus of health care delivery is quality of life (Conill, Verger, Henriquez, Saiz, Espier, Lugo, & Garrigos, 1997).
- Dying is defined as imminent patients in the last days of life (Frechen, Zoeller, Ruberg, Voltz, & Gaertner, 2012).
- Medication is defined as pharmacological interventions to relieve distressing symptoms (Lau, Kasper, Hauser, Berdes, Chang, Berman, Masin-Peters, Paice, & Emanuel, 2009).
- Best Practice is defined as the application of the best available research results (evidence) when making decisions about health care and utilizing research evidence along with clinical expertise and patient preferences (U.S. Department of Health & Human Services, 2015).

1.7 Chapter Summary

Hospice patients have a prognosis of six months or less to live; imminent death or decline can occur at any moment. Morphine relieves symptoms including pain and

dyspnea. However, it does not address all the unexpected symptoms that occur with hospice patients during their final days. Lau et al. (2009) identifies the cornerstone of hospice care has been the utilization of medications to relieve any symptoms. In hospice patients, anticipatory multi-symptom medications will improve overall multi-symptom management and patient outcomes. The delivery of care encompasses the utilization of evidenced-based best practice measures to alleviate multi-symptoms in hospice patients and quality of life during the end-of-life transition. Anticipatory medications that address multiple symptoms at the patient's residence can potentially improve overall symptom management during the end-of-life transition. Effective symptom management is one of the many concepts necessary to improve hospice patient outcomes and allow the patient to experience a dignified death. Implementation of comfort care kits into hospice patients' homes can reduce suffering and distress by both patients and their caregivers during symptom crisis. Continuous provider and caregiver education is imperative to understanding the symptoms and therapeutic interventions that can provide relief to hospice patients. Identifying and appraising quality evidence from current research is important to change current clinical practice guidelines that lead to improved patient outcomes. The goal of this quality improvement project is to improve the quality of life with appropriate symptom management during the end of life transition using multi-symptom management.

Chapter 2 Literature Review

2.1 Search Methodology

Our continuously evolving healthcare system sometimes uses evidence-based research to facilitate process improvement. It is essential for healthcare clinicians to possess the skills of critically appraising evidence and distinguishing best evidence from unreliable evidence (Melnyk & Fineout-Overholt, 2011). The purpose of this clinical quality improvement project is to compare the provider's perceptions after an educational model for single-symptom management versus multi-symptom management during the end-of-life transition in adult patients to improve quality of life outcomes for a dignified death. To that end, a systematic literature review was performed with the purpose of identifying evidence that supports the utilization of multi-symptom management, implementation of comfort care kits, best pharmacologic measures to alleviate multi symptoms, and interventions to improve the quality of care provided to hospice patients during their end-of-life transition. This study used a comprehensive search of databases accessed through the University of South Carolina's online library as the basis to identify comfort and quality interventions to address multi-symptom management in hospice patients during end-of-life care.

The electronic databases utilized in the review were CINAHL, EBSCO, OVID, and PubMed. This project used all databases for the advanced search of medical literature to identify reports of multiple symptoms experienced by hospice patients,

improved patient outcomes with medications, comfort care kits, or other interventions. This quality improvement project combined groups of key search terms and words tosearch each database. The following search terms were utilized: “death” or “terminal care” or “hospice” or “end of life” or “dying” or “dying process” or “hospice care” or “palliative care” and “signs or symptoms” and “symptoms” and “pain” and “dyspnea” and “increased secretions” and “nausea” and “comfort care kits” and “medication kits” and “medications” and “caregivers” and “morphine” and “best practice”. The limitations were set for English-only papers with additional criteria of the publication years to have occurred between the years 1997 through 2015. This project implemented these limitations to generate current, up-to-date, and continuous research on specific end-of-life care interventions. The search engine produced literature from topics on prominent symptoms, medications utilized to alleviate symptoms, comfort medication kits, pharmacovigilance, caregivers’ concerns/skills needed, and several articles that compared medications used in hospice patients. The database generated significant data from selected articles placed in a literature review table (See Appendix F) then utilized for their analysis and synthesis.

Hierarchies of research designs have been indicated as the best levels of evidence for this intervention type PICO question regarding multi-symptom management compared to single-symptom management using morphine medication only to improve overall quality of life during the end-of-life transition. Levels of evidence to answer this type of question rank from highest to lowest in the following order: systematic review/meta-analysis of randomized control trials (RCT); nonrandomized control trials; cohort studies or case control studies; meta-synthesis of qualitative or descriptive studies;

qualitative or descriptive single studies; and expert opinions (Melnyk & Fineout-Overholt, 2011). This study rated quantitative and qualitative studies on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A). SIGN provided the audit tools necessary to distinguish reputable data, identify proficient guidelines for changes in practice, raise the standards of clinical care, and deliver improved patient outcomes (SIGN, 2013).

2.2 Analysis

Current research has been analyzed to identify common symptoms, multi-symptom prevalence, medications, routes of administration, education, and implementation of comfort care kits in hospice patients. Analysis of literature has been a significant process utilized to support changes in current practice, policies, and guidelines.

2.3 Symptoms

Kehl and Kowalkowski (2012) conducted a systematic review to identify the most prominent signs and symptoms of imminent death that occur in an individual's last two weeks of life. These researchers utilized twelve peer-reviewed articles, representing a total of N=2416 patients located in various home-based settings (Kehl and Kowalkowski, 2012). They identified 43 unique symptoms and calculated the prevalence of symptoms within the population. Kehl and Kowalkowski (2012) improved the validity and reduced the risk of bias through excluding studies that utilized retrospective recall in the collection of data on signs and symptoms. The individual reviewers managed the articles in EndNote X6 and utilized the checklist titled STrengthening the Reporting of

Observational studies in Epidemiology (STROBE) to filter and eliminate articles that did not meet their criteria (Kehl and Kowalkowski, 2012). The information collected from each article included the following: sample size; setting; study design; methods of data collection; diagnoses of study participants; assessment period (interval of time before death); number of symptoms evaluated; prevalence for each symptom; and overall studies results and/or outcomes (Kehl and Kowalkowski, 2012).

Out of the 12 studies utilized, they were divided into "restricted" and "unrestricted." The authors considered studies where investigators identified specific signs or symptoms prior to the examination as "restricted" and others as "unrestricted" (Kehl and Kowalkowski, 2012). The overall data on the prevalence of signs and symptoms were weighted and unweighted prevalence calculations (Kehl and Kowalkowski, 2012). Weighted prevalence calculations were the mean for each sign and symptom across the studies (Kehl and Kowalkowski, 2012). Unweighted prevalence calculated the average percentage for each sign and symptoms across studies (Kehl and Kowalkowski, 2012). Weighted prevalence provides a more reliable representation due to the emphasis of results from studies with large sample sizes (Kehl and Kowalkowski, 2012). The researchers conducted a T-test using software SPSS 19.0 to determine the prevalence of symptoms amongst restricted and unrestricted studies (Kehl and Kowalkowski, 2012).

The studies represented data from various countries including the United States, Japan, Canada, Spain, and Hong Kong (Kehl and Kowalkowski, 2012). The settings included inpatient medical centers, palliative care units, long-term care units, outpatient clinics, and home hospice (Kehl and Kowalkowski, 2012). Overall, a total of 62 signs

and symptoms were identified throughout the analysis of all 12 studies (Kehl and Kowalkowski, 2012). There was a wide variation in the prevalence of symptoms that ranged from 8.6% to 55.7% (Kehl and Kowalkowski, 2012). Kehl and Kowalkowski (2012) identified the following as the most commonly reported symptoms: dyspnea (62.1% w, 56.1% u); weakness (54.4% w, 23.9% u); respiratory secretions (53.3% w, 51.4% u); and pain (47.2% w, 52.8% u). According to Kehl and Kowalkowski, (2012), the prevalence of the symptom dyspnea had a higher prevalence than pain in both weighted and unweighted calculations. Respiratory secretions had a higher prevalence than pain in weighted prevalence calculations; however, it had lower prevalence in unweighted calculations (Kehl and Kowalkowski, 2012). A limitation to this systematic review was the wide range of prevalence of signs and symptoms, variations in sample sizes, and different methods utilized to collect data amongst the various studies. Another limitation to the study is the consistency with accurate patient assessment and documentation of a sign or symptom. Also, documentation as a patient's death approaches may be less complete due to the abrupt changes in patient status. Kehl and Kowalkowski (2012) were rated a 1+ based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Bishop and colleagues (2009) identified a gap in knowledge regarding their policies on the administration of comfort medications and the use of hospice's medication kits in homes to manage uncontrolled symptoms. According to Bishop et al. (2009), "…there is little data to guide practice of managing symptomatic emergencies in the home" (p.37). Medicare now requires hospice agencies to participate in the Medicare Hospice Benefit program to prevent or control symptomatic crisis in the sickest patients

within our healthcare systems (Bishop et al., 2009). In April 2005 through July 2005, Bishop and colleagues (2009) conducted a retrospective research survey analyzing 22 hospice organizations across New Hampshire. The survey was administered by phone interview, conducted by two Nurse Practitioners associated with the Dartmouth Hitchcock Medical Center, Palliative Care Specialty (Bishop et al., 2009). The survey included questions regarding the following: the duration of time prior to ordering a hospice patient a medication kit and the availability of receiving the kit, "characteristics of prescribers, pharmacies, kit contents, costs, frequency of use, and perceived impact of kits" (Bishop et al., 2009). Additionally, Bishop and colleagues' (2009) survey included the following questions: "obstacles to obtaining kits; how often medications within kits are used, and the impact of their use" (p.38). Descriptive statistics measurements were generated utilizing the program Stata, version 8.2. (Bishop et al., 2009). Bishop et al. (2009) defined symptoms that cause negative clinical outcome or require emergency transport to a local hospital. The symptoms include the following: pain, dyspnea, nausea/vomiting, seizures, acute anxiety, agitation/delirium, noisy secretions, and fever (Bishop et al., 2009). Of the 22 hospice organizations, 59% of agencies had average daily census (ADC) less than 20 and 41% had ADC greater than 20 patients (Bishop et al., 2009).

All participating hospice agencies reported they dispensed medication kits to relieve uncontrolled symptoms (Bishop et al., 2009). The agencies named the kit in various terms: 50% used "emergency" in the kit's title, 36% "symptom relief," "relief kits," and 14% used the title "comfort" (Bishop et al., 2009). The providers prescribing the "kit" were labeled as the following: 50% primary care physician and 41% either

primary care physician or hospice medical director (Bishop et al., 2009). According to Bishop et al. (2009), 86% of the hospice agencies utilized a written protocol for administration of the kit and 27% had a protocol for specific negative situations such as cardiac problems. The results regarding access to pharmacy concluded that 90% had twenty-four hour pharmacy access, 84% had access to a pharmacy that compounded medications, and 68% used community pharmacies (Bishop et al., 2009). Fifty-two percent dispensed on admission and 33% within three days after the patient's admission to hospice (Bishop et al., 2009). Bishop et al. (2009) reported one hospice ordered the kit once a patient was unable to swallow and 76% of hospice reported that kits are ordered routinely for patients. Sixteen agencies reported cost for kits: 12 reported cost to $50 or less and four reported a cost of greater than $50 (Bishop et al., 2009). Frequency for ordering: 55% dispensed 1–10 kits in one month interval, 45% dispensed 10 or more kits per month, and those hospice's with higher ADC dispensed more kits per month. Of the dispensed kits: 82% reported kits were used in more than 50% of the cases (Bishop et al., 2009).

Hospice agencies must be prepared for symptomatic crisis at all times; otherwise, the families are forced to seek treatment for symptoms at an emergency room or acute care setting. Eighty-five percent reported that kits helped avoid emergency room visits and 10% reported that it occasionally prevented unnecessary ER visits (Bishop et al., 2009). The hospice agencies utilized various medications in their kits (Bishop et al., 2009). All agencies' kits contained medications to treat pain, agitation, and dyspnea; 81% for nausea and vomiting and 76% for seizures (Bishop et al., 2009). Routes of administration including oral, sublingual, and rectal were found to be the most common

routes for consumption (Bishop et al., 2009). The overall purpose is to prevent symptomatic crisis and improve the delivery of hospice care. Hospice patients that reside in rural geographical areas can be negatively affected by the following: the length of time it takes for the appropriate hospice provider to arrive, assessment of symptomatic crisis, and access to pharmacy to obtain medications (Bishop et al., 2009). Limitations to this research included: geographical bias due to the researchers conducting the survey in a single state, New Hampshire; sampling bias due to the small sample population utilized and selection of participants were not randomized; and reporting bias because the tool used to facilitate response was a survey and was a general impression of a single representative within a hospice agency that responded. The survey was brief and did not ask about doses of prescribed medications or the quantities of medications dispensed. Bishop et al. (2009) reported significant variability in the types of medications, route of administration, and dosages between the hospice agencies. Consistency in hospice agencies' symptom relief kits contents and protocol are essential components in the delivery of quality care during the end-of-life transition. Bishop and colleagues (2009) were rated a three based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Wowchuk, and colleagues (2009) conducted a simple descriptive study that addressed comfort and symptom crisis management in patients anticipated to die within two weeks in a nonmedical setting. Wowchuk and colleagues (2009) illustrated that primary causes for unplanned admissions to hospitals during the last weeks of life included poor symptom control and/or caregiver role strain. According to Wowchuk et al. (2009), "symptom control often stems from a sudden aggravation of symptoms that

become difficult to treat at home, due to changes in patient medication requirements or route of delivery that were not adequately anticipated and planned for" (p.798). Avoiding unplanned admissions into the hospital in hospice patients during the terminal phase includes access to anticipated medications for common symptoms that occur during the end-of-life transition and increased caregiver education regarding administration of comfort medications (Wowchuck et al., 2009).

Winnipeg Regional Palliative Care Program established and piloted palliative medication kits (PMK) to manage symptomatic crisis. They included a variety of medications in the event more than one unanticipated symptom occurred and increased patients' level of comfort during the end-of-life transition (Wowchuk et al., 2009). Wowchuk and colleagues (2009) stated that the PMKs included the following medications: morphine 50 mg/mL liquid for pain and/or dyspnea; hydromorphone 10mg/mL injectable preparation for pain and/or dyspnea; methotrimeprazine 25mg/mL for sedative, anti-nauseant, dyspnea, and/or pain; lorazepam 1 mg sublingual to address anxiolytic, sedative, and/or anticonvulsants; and scopolamine transdermal gel 0.25mg/0.1mL to address oral or respiratory secretions and/or nausea. Wowchuk and colleagues' (2009) pilot testing was approved by Winnipeg Regional Health Authority Palliative Care Program and partnered with a local pharmacy to obtain data from 2002 to 2007. The program placed PMKs in patients' homes anticipated to die within two weeks and provided only a 24 hour supply of each medication (Wowchuk et al., 2009). According to Wowchuk and colleagues (2009), nurses followed guidelines to obtain, refill, and return kits along with the completion of a data collection form every time they

opened a PMK. The palliative care program then submitted and analyzed this data (Wowchuk et al., 2009).

Wowchuk and colleagues (2009) reported the following: 293 kits were dispensed and accessed; 43.7% of the population were women; overall average age was 70.3 years old; and mean survival for time the kit was opened until patient died was 4.54 days. Wowchuk et al. (2009) identified out of the 293 kits ordered for patients, 258 (88%) died at home, 28 (10%) in a palliative care unit, and two (1%) in an acute care environment. Wowchuck and colleagues (2009) reported the most prominent symptoms were pain (24%), retained secretions (23%), and agitation/delirium (21%) that included anxiety or confusion, dyspnea (14%), and nausea (4%). The following medications had the highest frequency of utilization: methotrimeprazine (29%), scopolamine (28%), and dilaudid (20%) (Wowchuk et al., 2009). Palliative care programs strive to facilitate appropriate methods with the provision of care delivered to actively dying patients at home. These programs strive to avoid unnecessary emergency department encounters or unintended admissions to an acute care facility for patients that wish to receive palliative care in their own home (Wowchuk et al., 2009). According to Wowchuk et al. (2009), frequently poor symptom control is the leading cause for an unplanned hospitalization within this patient population and PMKs were initially developed to extend the length of time patients can be cared for in their home. Doyle's assertion is that palliative care must plan for the future and order PMKs to prevent patient suffering from anticipated symptoms that occur during the end-of-life transition (Wowchuk et al., 2009). Limitations include sampling bias with small sample size and nonrandomized sample size. Reporting bias is a limitation to this study; families and patients were not included. Additionally, the

median time interval of death was four days; therefore, retrieval of information may be difficult (Wowchuk et al., 2009). Wowchuk and colleagues (2009) were rated a three based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Sera and colleagues (2014) conducted a Retrospective Cross-sectional Study to analyze commonly prescribed medications utilized within the hospice population. According to Sera and colleagues (2014), studies on the types of medications prescribed to patients receiving palliative care have shown that chronic conditions medication intake decreases whereas symptom management medication intake increases. Sera and colleagues (2014) utilized data provided by a national hospice organization, Seasons Hospice & Palliative Care, located in 11 states. Sera et al. (2014) study used patient electronic medical records (EMR) to gather the following data: clinical database of patient demographic and medication. Patients included in the study were admitted to hospice on or after January 1, 2010, if they died in hospice on or before December 31, 2010 (Sera et al., 2014). The EMR provided the following information: drug name, dosage, formulation, strength, pharmacological class, and compounded formulations (Sera et al., 2014). Sera and colleagues (2014) gathered the following demographic variables: age, sex, race, and state of residence. They also evaluated the patients' admitting diagnosis, location of care, and length of stay. They utilized Microsoft Excel to run statistical analysis on all variables. Sera and colleagues (2014) included (N=4252) hospice patients in this study located in 11 states.

Sera et al. (2014) illustrated essential patient demographics as the following: average age was 77.5 years, 56.7% patients were women, and 64.4% patients were

Caucasian. Sera and colleagues (2014) identified the most common primary admitting diagnosis was cancer at 34.6%, the most common setting for hospice was reported at home 29.2%, and the average length of stay was 22.2 days (median eight days, range 1–353 days). Sera et al. (2014) reported out of the 100 most commonly prescribed medications in hospice population, the six most common drugs included in symptom management medication kits included the following: acetaminophen 85.8%, morphine 84.4%, haloperidol 49%, lorazepam 84.5%, prochlorperazine 47.3%, and atropine 62.5%. Out of all drug classes, the most prescribed medications were reported for symptom management use (Sera et al., 2014). Sera et al. (2014) identified that 60% of hospice patients were prescribed the following during admission: opioid and nonopioid analgesics, anxiolytics, anticholinergics, and antipsychotics. According to Sera et al. (2014), hospice patients with cancer were commonly prescribed opiods, antipsychotic agents, corticosteroids, and antiemetic medications. Hospice patients with dementia were commonly prescribed nonopioid analgesics, vitamins or supplements, and antiplatelet medications (Sera et al., 2014). The majority of hospice patients with lung disease were prescribed bronchodilators (Sera et al., 2014). Overall, the prescription of opioid analgesic medications showed a statistical significance with P value = 0.01 among the hospice patients admitted with cancer, dementia, and lung disease. Sera et al. (2014) identified the importance for additional research concerning particular end stage diseases and specific medications that provide positive patient outcomes with symptom management. The sample bias was the use of only one national hospice organization. This study identified the reporting bias by data regarding medication use that was not available. Sera and colleagues (2014) were rated a 2+ based on their level of quality

through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Comfort and being free of all symptoms are the main wishes of a patient during their final days (Klinkenberg et al., 2004). Klinkenberg and colleagues (2004) reported that end-of-life patients are a vulnerable population and research cannot be generalization to the entire terminal population. They believed that conducting "after death interviews" with relatives of the loved one approaches the perception of the experience differently (Klinkenberg et al., 2004). Klinkenberg and colleagues (2004) conducted a retrospective research study. The sample (N=270) included the relatives of decedents' (aged 59–91) evaluation of symptom control and outcomes as reported by relatives after the death (Klinkenberg et al., 2004). Klinkenberg et al., (2004) analyzed the presence of symptom burden, the associations (overall and symptom specific), chronic diseases, and cognitive functioning. The study randomly retrieved the sample of 3,107 subjects from older participants aged 55 to 85 years old from the Longitudinal Aging Study Amsterdam (LASA). In September 1992 to 1993, they completed a baseline interview and in September 1995 to 1996, they conducted a follow-up interview. Only 270 proxy members participated. They consisted of spouses or children of the deceased hospice patient (Klinkenberg et al., 2004). Twenty-six months was the mean time between death and the interview with the relative. The interval of time ranged from four months to almost four years (Klinkenberg et al., 2004). The following characteristic of participants was recorded: sex, age at death, type of residence at three months before death, and place of death (Klinkenberg et al., 2004). According to Klinkenberg and colleagues (2004) suggested that seven of the most prominent symptoms reported from literature in the last

week of life include the following: fatigue, pain, shortness of breath, depression, anxiety, confusion, and nausea/or vomiting. The interview consisted of questions regarding the deceased relative's cognitive decline, presence of chronic diseases, consciousness during the last week of life, and ability to communicate and make decisions (Klinkenberg et al., 2004). The sample utilized consisted of 167 men (62%) and 103 women (38%) with a mean age of 80 years old (Klinkenberg et al., 2004). According to Klinkenberg and colleagues (2014), almost half of the sample had two or more chronic diseases while 10% reported none. Thirty-six percent reported cognitive decline over the last three months of life and 34% were unable to make decisions in the last weeks of life. Out of the 34% unable to make decisions, 15% were not capable of communicating, while 4% were nonresponsive throughout the last weeks of life (Klinkenberg et al., 2004).

Klinkenberg and colleagues illustrated with this population the prevalence of symptoms during the end-of-life transition are the following: fatigue (83%), shortness of breath (50%), pain (48%), confusion (36%), anxiety (31%), depression (28%), and nausea and/or vomiting (25%) (Klinkenberg et al., 2004). Klinkenberg et al. (2004) reported that (75%) of the population had two or more symptoms and (9%) reported no symptoms during their last week of life. Klinkenberg and colleagues (2004) identified that patients with severe cognitive decline reported a higher symptom level than patients with no or low cognitive decline. Patients with terminal cognitive decline demonstrated higher score on all symptoms with the exception of pain and shortness of breath during the end-of-life transition (Klinkenberg et al., 2004). Through their analysis of the relationship between chronic disease and symptom burden, the following three diseases significantly impacted the patient's level of comfort: COPD ($P<0.05$), cardiac disease

(P<0.001), and cancer (P<0.001). COPD was associated with an increased chance the patient suffered from shortness of breath (OR = 12.7; 95% CI: 5.4-30) and cancer patients have an increased incidence of suffering from pain (OR = 3.9; 95% CI: 1.7-16.7). According to Klinkenberg et al. (2004), cognitive decline is problematic to symptom management due to a patient's inability to communicate; therefore, it is essential to monitor these patients' non-verbal cues.

According to Klinkenberg and colleagues (2004), results revealed it was not uncommon that patients from the Netherlands suffered from symptoms during the end-of-life transition. Limitations include geographical bias due to the study conducting the survey in the Netherlands. Reporting bias is applicable to this study because it collected data regarding the relatives and caregivers' perception of the deceased patients' distressful symptoms during the end-of-life transition. Additionally, another limitation was the variation in the length of time between the patient death and interview of caregiver. According to Klinkenberg et al. (2004), the participants selected died between 1995 and 1998; therefore, accuracy in recall of patient's symptoms could be problematic. Klinkenberg and colleagues (2004) were rated a 2 + based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Common symptoms found throughout the hospice patient population have been pain, dyspnea, nausea/vomiting, seizures, agitation, acute anxiety, and delirium. Kehl and Kowalkowski (2012) found in multiple studies that the most commonly reported symptoms during the last two weeks of life were dyspnea, weakness, respiratory secretions, and pain. In comparison, Bishop and colleagues (2009) found that at least

90% of seriously ill patients and healthcare providers valued being free of pain, anxiety, and shortness of breath in the last days of life as most important. According to Wowchuk et al. (2009) the study demonstrated that the most prominent symptoms addressed in hospice patients were pain, nausea, vomiting, shortness of breath, agitation, confusion, retained respiratory secretions, and weakness. In comparison Sera and colleagues (2014) reported that the most prominent symptoms encountered in hospice patients at end-of-life were pain, dyspnea, nausea, delirium, anxiety, and depression. Klinkenberg et al. (2004) found that the seven most prominent symptoms identified as burdensome during the last two weeks of life included fatigue, pain, shortness of breath (dyspnea), anxiety, nausea, confusion, and depression. Out of their sample, only 9% of the population had been symptom free during the last week of their life (Klinkenberg et al., 2004).

Bishop and colleagues (2009) reported symptomatic crises were highest in prevalence among hospice patients as compared to most non-end-of-life populations. Managing these symptoms has been critical to the end-of-life transition, as the majority of hospice patients reported the desire to remain at home throughout the end of their lives (Bishop et al., 2009). Symptomatic crises involved the following conglomerate of variables: understanding end-of-life symptoms; providing education to patients and caregivers to identify which medications to utilize in order to control the present symptoms; understanding the medical management in hospice patients who were rapidly declining; and alleviating caregiver role strain due to unmanageable symptoms (Bishop et al., 2009).

2.4 Dyspnea.

Conill and colleagues (1997) conducted a descriptive study to assess the frequency of symptoms during a patient's last days of life and utilized this data as a comparison of the patient's symptoms reported at their first evaluation. The study included consecutive patients (N=176) whom passed away at their home, in a hospice regional social health support area, or in a hospital setting (Conill et al., 1997). The participants were involved during a one-year timeframe (January through December 1994) and given a questionnaire to assess the prevalence of symptoms at first evaluation and then during the last seven days of life (Conill et al., 1997). End-of-life patient population with advanced diseases belonged to various settings including the following: Department of Radiation Oncology, Hospital Clinic, Regional Area of Social Health Support, Home Care Teams, and Hospice (Conill et al., 1997). The mean age of patients was 67.7 years of age that included men (N=121) and women (N=55) (Conill et al., 1997). The mean time interval between the first and second assessment was 6.5 weeks (Conill et al., 1997). A total of 56.8% of patients' second assessment interview were conducted during their last 48 hours of life (Conill et al., 1997). The top three reported symptoms by participants in both assessments included asthenia, anorexia, and dry mouth (Conill et al., 1997). Conill and colleagues (1997) identified that the prevalence of pain was reported higher at the first assessment (52.3%) and reported lower (30.1%) during the second assessment. Also, 64.2 % of the patients involved in the study passed away in their home (Conill et al., 1997). Limitations to this study include the patient's differential life-limiting diseases. There is reporting bias because patients experience various symptoms that can be contributed to their individual disease process. The study does not

indicate if the participants were a randomized sample. Conill and colleagues (1997) were rated a 3 based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Tranmer, Heyland, Dudegeon, Groll, Squires-Grahman, and Coulson (2003) participated in a descriptive study to compare symptom experience between hospitalized cancer and non-cancer patients near the end-of-life. Tranmer and colleagues (2003) utilized the Memorial Symptom Assessment Scale (MSAS) to compare symptom experience and to determine if this tool was a valuable measurement for symptom distress in noncancer patients and Piper Fatigue Scale (PFS), a measurement tool of the symptom fatigue. Tranmer et al. (2003) explained common symptoms experienced at the end-of-life transition are fatigue, anxiety, and/or pain, which are associated with a decreased level of comfort in this population. The (MSAS) was developed to evaluate symptom prevalence, frequency, severity, and distress (Tranmer et al., 2003). Tramner and colleagues (2003) conducted an exploratory analysis at a hospital in Ontario, Canada, during June 1999 to November 2000. Patients were screened on admission to the university-affiliated hospital's medical or surgical floors for prospective eligibility (Tramner et al., 2003).

Patients 18 years or older with one of the following diseases and a prognosis of 50% at six months were included in the analysis: Chronic Obstructive Pulmonary Disease (COPD), Congestive Heart Failure (CHF), Cirrhosis, and Cancer. Researchers conducted face-to-face interviews with consenting patients utilizing a questionnaire package that contained both the MSAS and the Piper Fatigue Scale (PFS) (Tranmer et al., 2003). The eligible sample size was (N=236), out of the available (N=135) agreed to participate, and

the tool used to compute statistical analysis of data was evaluated with the utilization of SAS Version 8.2 (Tranmer et al., 2003). Tranmer et al., (2003) illustrated only one statistical significance with the demographics amongst both groups: non-cancer patients were older (average 79 years old), versus cancer patients (64 years old). Additionally, non-cancer patients had a higher prevalence of admission to inpatient hospital ICU or step down units in comparison to cancer patients. They identified that cancer patients (41%) were most likely to receive palliative care over non-cancer patients (6%). Tranmer et al. (2003) demonstrated that the six-month mortality rate was significantly higher in cancer patients (51%). Patients in the cancer group reported a significantly higher prevalence ($P<0.01$) of the following symptoms in comparison to non-cancer patients: pain (78% vs. 49%), nausea (61% vs. 28%), unpleasant taste (50% vs. 19%), constipation (48% vs. 38%), and vomiting (41% vs. 10%). The non-cancer group demonstrated the following significant results with their experience of prominent symptoms: shortness of breath (86% to 38%) and cough (72% to 52%) over the cancer patients' prevalence (Tranmer et al., 2003). The study identified no prevalence of psychological symptoms as statistically significant between the two groups (Tranmer et al., 2003).

Tranmer and colleagues (2003) determined through the analysis of symptom characteristics that non-cancer patients revealed greater frequency of weight loss (64% vs. 32%), increased distress associated with dizziness (35% vs. 5%), and coughing (48% vs. 21%). The symptom score associated with coughing acknowledged a significance, cancer patients score (1.74 vs. 2.29) ($P<0.05$). The prevalence of symptoms was high in both non-cancer and cancer patients, the average number of symptoms experienced was 10.33 ± 3.86 and mean prevalence of symptoms was 11.5 ± 6. (Tranmer et al., 2003).

The cancer group illustrated a significantly higher prevalence of the symptoms pain, nausea, unpleasant taste, vomiting, and constipation (Tranmer et al., 2003). The non-cancer group reported a higher prevalence of shortness of breath and cough (Tranmer et al., 2003). Tranmer and colleagues (2003) identified no significant difference in prevalence of psychological symptoms between the two groups. Tranmer and colleagues (2003) illustrated the significance to research the distinct physical symptoms associated with specific illnesses. This supports the implementation of comfort care kits into end-of-life care patients' environments to alleviate various symptoms during crisis until further assessment is accomplished. Severity scores were higher in both groups than frequency and distress scores (Tranmer et al., 2003). The following highest symptom results of both groups included the following: pain (2.80), lack of energy (2.76), shortness of breath (2.75), difficulty sleeping (2.61), dry mouth (2.57), and feeling worried (2.56). The prevalence was found to be different; however, the distress from pain was found to be similar between the two groups (Tranmer et al., 2003). When cancer patients experienced shortness of breath the distress was statistically significant to experiences report by COPD and CHF patients. The illustrated that both cancer and non-cancer patients experience multiple symptoms frequently during the end-of-life transition (Tramner et al., 2003). They identified MSAS was an adequate tool in the utilization of calculating symptom prevalence and other relationships in non-cancer patients. One limitation to this study was reporting bias, Tranmer and colleagues (2003) explained patients may not perceive coughing, shortness of breath, or feeling worried as a symptom. Another reporting limitation was the patients symptom experienced was measured only once throughout the duration of the study (Tranmer et al., 2003). Tranmer and colleagues

(2003) were rated a 2+ based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

A study by Wowchuk and colleagues (2009) reported that retained respiratory secretions and subsequent dyspnea were the most common causes of distress experienced during the terminal phase by this vulnerable population. These findings paralleled a study by Kehl and Kowalkowski (2012) that reported out of 43 symptoms experienced in the last two weeks of life, those identified with the highest prevalence had been dyspnea 56.7% over pain 52.4%. They also found in multiple studies that the prevalence of dyspnea (62.1% weighted, 56.1% unweighted) was more prominent than pain (47.2% weighted, 52.8% unweighted) (Kehl & Kowalkowski, 2012). According to Conill et al. (1997) dyspnea is a distressful symptom during the end-of-life transition that often goes unreported by patients and unnoticed by healthcare professionals. Tranmer et al. (2003) compared symptoms of seriously ill cancer patients and noncancer patients during their end-of-life transition. Tranmer and colleagues (2003) found that noncancer patients reported a higher prevalence of dyspnea (86%) versus patients with cancer (38%). During Klinkenberg and colleagues' (2004) study on prevalence of symptoms and symptom burden during the last week of life, dyspnea (50%) and pain (48%) was present in over half the population sample.

2.5 Increased Respiratory Secretions.

Kintzel and colleagues (2009) conducted a literature review to identify the effectiveness of using anticholinergic medications to reduce the symptom noisy respirations in adult hospice patients. Kintzel and colleagues (2009) reported the range of

frequency for terminal patients suffering from noisy secretions is 31% to 92%. When a patient is actively dying (generally within 24 hours prior to their death) noisy secretions generally become a prominent symptom (Kintzel et al., 2009). Kintzel and colleagues (2009) listed the following as standard measures to alleviate noisy secretions include: position patient semi-prone, decrease or withhold parental hydration, family and/or caregiver education, gentle suctioning, and administration of anti-secretory medications. Medications used to assist with symptomatic relief of noisy secretions include atropine, glycopyrrolate, scopolamine, and scopolamine derivatives (Kintzel et al., 2009). These medications are unable to relieve prior retained secretions; however, the reduced the production of bronchial secretions (Kintzel et al., 2009). In the literature review, Kintzel and colleagues conducted the "anticholinergic medication regimen underwent interdisciplinary review by institutional pharmacist, physicians, nurse educators, and hospice nurses before its inclusion in comfort care order set" (p.459). Kintzel et al. (2009) analyzed reports that utilized clinical data for symptom management of noisy secretions in hospice patients and management and drooling in non-hospice patients.

Kintzel and colleagues (2009) utilized six studies to analyze evidence for use of anticholinergic medication in hospice patients. One study used scopolamine hydrobromide, scopolamine butylbromide, and glycopyrrolate effectiveness for relieving noisy secretion (Kintzel et al., 2009). The effectiveness of treatment was evaluated on a scale of mild, moderate, or severe by the nurse that administered the anticholinergic 30 minutes prior (Kintzel et al., 2009). Additionally, the intensity of distress displayed by relatives was measured as not at all, a little, quite a bit, and very much (Kintzel et al., 2009). Kintzel et al. (2009) illustrated that a single dose of subcutaneous scopolamine

butylbromide and glycopyrate regimens show increased improvement for hospice patients' outcomes with management of retained secretions.

Kintzel and colleagues (2009) demonstrated that two additional studies assessed the effectiveness after the institutional changes from scopolamine to glycopyrrolate. Researchers administered both medications first by initial bolus following continuous infusion. Data was collected by nurses' rating of patients utilizing a noise score. The noise scale was rated at four separate events: at the time of study entry, 30 minutes after the first dose, 30 minutes following a repeated dose, an then every four hours until the patient expired (Kintzel et al., 2009). According to Kintzel and colleagues (2009), the median age was 71 years old (range 33–92 years old). Scores after the initial dose of anticholinergic medication was better in scopolamine-treated group (56%) in comparison to the glycopyrrolate-treated patients (39%) (P value = 0.002). This is statistically significant. A repeated dose of anticholinergic medication was administered to 33% (36–108) of patients treated with scopolamine and 50 % of (31–62) of patients treated with glycopyrrolate (p=0.05). Kintzel et al. (2009) identified glycopyrrolate and scopolamine had equal effectiveness. One study utilized data from institutionalized hospice patients suffering from increased respiratory secretions and receiving an anticholinergic (Kintzel et al., 2009). Actively dying patients were assessed every four hours for the presences of the following symptoms: respiratory secretions, agitation, and pain (Kintzel et al., 2009). Patients treated with glycopyrrolate had a more positive response ($p< 0.01$) over those administered scopolamine (Kintzel et al., 2009). Patients administered glycopyrrolate had a longer median of time between the onset of symptoms from respiratory secretions and death than those taking scopolamine (12 hours, $p<0.01$) (Kintzel et al., 2009).

Additionally, study authors analyzed a report on the usage of parental scopolamine to manage noisy secretions in hospice patients (Kintzel et al., 2009). One studied reported an increase in agitation witnessed in patients treated with scopolamine versus receiving glycopyrrolate; however, the study overall identified no significance in the difference between either medication to relief noisy secretions. Kintzel et al. (2009) illustrated the difficulty in obtaining data from this population due to potential unconscious patients, decreased assessment of vital signs, and/or, laboratory monitoring during the final days preceding hospice patient's death. The studies of the use of anticholinergics medications in nonhospice patients to manage sialorrhea and excess drooling could potentially benefit noisy secretions in hospice population (Kintzel et al., 2009). The anticholinergic medications used in the non-hospice population are mainly focusing on patients with neurologic disorders, disabilities, and medication induced salivation (Kintzel et al., 2009). In the pediatric population with cerebral palsy and/or other neurological development disorders, the anticholinergic oral glycopyrrolate improved salvation and drooling (Kintzel et al., 2009). Utilization of transdermal scopolamine patches were essential component of the medication regimen to alleviate the symptoms of hyper-salivation or noisy secretions in 109 patients with various medical conditions (Kintzel et al., 2009).

Kintzel and colleagues (2009) reported reduced salivation in patients with advanced peritoneal cancer and atropine drops 1%, twice a day to reduce severity of the symptom drooling in Parkinson patients. Reason for additional testing of sublingual ipratropium as alterative to sublingual atropine ophthalmic drops included the following concerns: atropine overdose; duration; rebound sialorrhea, and difficulty with self-

administering atropine drops (Kintzel et al., 2009). Impending signs of death include noisy secretions, confusion, agitation, pain, dyspnea, and tachypnea and can cause distress in hospice patients, caregivers, family members, and staff (Kintzel et al., 2009). Kintzel et al. (2009) explained that subcutaneous scopolamine hydrobromide and subcutaneous scopolamine butylbromide have not been commercially licensed for use in the United States. According to Kintzel and colleagues (2009) sublingual administration of ipratropium solution is an alternative to glycopyrrolate and atropine; however, no reports in hospice patients were identified. They illustrated the significance of medication regimens for palliative care should be developed from clinical evidence of efficacy, safety, cost, product availability, and administration expediency (Kintzel et al., 2009). Reporting bias was present due to the noise score being assessed from nurse's perception. Kintzel and colleagues (2009) were rated a 4 based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

A literature review that described treatment options for noisy secretions in hospice patients reported that the prevalence for the symptom of noisy respirations were present in terminal patients ranges from 31% to 92% (Kintzel et al., 2009). When changes in a patient's respirations occurred, such as the auscultation of noisy secretions without usage of a stethoscope, the hospice nurse usually reported the patient's debilitating status to the healthcare provider. Kehl and Kowalkowski (2012) reported out of 43 symptoms experienced in the last two weeks of life, those identified with the highest prevalence also included respiratory secretions (54.1.%). The weighted prevalence of respiratory secretions (53.3%) happened at a higher occurrence than pain

(47.2%) during the end-of-life transition (Kehl & Kowalkowski, 2012). Noisy secretions have been associated with the characteristic of a patient actively dying (Kintzel et al., 2009).

2.6 Pain.

Zerzan and colleagues (2010) analyzed various medications administered at end-of-life hospice patients that alleviate distressful symptoms including pain. In 2004–2006, Zerzan and colleagues (2010) utilized the University of Colorado's Cancer Center and 16 hospices to analyze the variable of medication usages. They conducted a secondary analysis of randomized trial data, examining use of five medication classes: opiates, nonsteroidal anti-inflammatory drugs (NSAIDs), adjuvant pain medications (tricyclic and anti-seizure), stimulants, and antianxiety medications in 16 study sites nationwide. Zerzan and colleagues (2010) illustrate that hospice companies themselves can potentially drive the choice of medications to the most cost-effective pharmaceutical plan of care used to treat particular symptoms. Zerzan and colleagues (2010) hypothesized that a hospice patient and their environment effects both the variation of medications used and their frequency of administration. Descriptive statistics and frequency variations were generated for patient-level data and characteristics of the environment where the patient receives care (Zerzan et al., 2010). Zerzan and colleagues (2010) used the following variables: age, gender, education, marital status, patient environment at home or facility, primary cancer type, location of bony spinal metastases, neuropathic pain, Karnosky Performance Status (KPS) scale, and the overall current mean of patients' pain scores. The study authors calculated the unadjusted and adjusted odds ratios to compare patients from 13 sites and location of care characteristics with each medication

class use by site. Adjusting for the following variables: age, education, marital status, patient environment at home or facility, primary cancer type, location of bony spinal metastases, neuropathic pain, Karnosky Performance Status (KPS) scale, baseline from the Brief Pain Inventory (BPI), lung cancer, breast cancer, and death. The variable gender was excluded from this particular analysis due to its strong correlation with breast cancer and women. Researchers performed statistical analysis using software SAS Version 9.1 (Zerzan et al., (2010). This illustrated several components related to the various medication usages in 380 patients. The average BPI score was 4.5 at the patient's entry into study. Patient's average age was 64.7, the majority of the patients were male 39%, 79% were at home, 25% had bony metastases, and 25% were experiencing neuropathic pain (Zerzan et al., 2010). Also, 21% of patients were not taking any form of opiate in their medication regimen (Zerzan et al., 2010).

Zerzan and colleagues (2010) identify "variation in medication use was not predicted by most patient characteristics or location of care (home versus facility)." Medication use varied between sites: "a range of 14%–83% of patients were on different types of opiates, 0%–40% on NSAIDS, 20%–69% on benzodiazepines, 0%–25% on adjuvant medications, and 0%–23% were on acetaminophen" during any duration of their data collection period (Zerzan et. al, 2010). Also, Zerzan et al. (2010) described that the usage of all types of pain medications decreased with the patient's age (odds ratio [OR] 0.75 [0.63–0.90]). Opiates were used less in the home environment 83.8% versus the facility 94.7%; however, the p-value was 0.02 identifying no statistical significance. Patients reporting neuropathic pain more likely received a NSAIDs and an additional pain medication to alleviate symptoms (Zerzan et al., 2010). Limitation in this study included

sampling bias because patients enrolled in this study may not represent all patients and reporting bias because medications were self-reported. Also, two sites used a formula plan of care established by a pharmacy manager and two other sites had no formula to guide medication usage (Zerzan et al., 2010). The study's strengths include the utilization of a large sample size (N= 380) and the inclusion of various geographical locations around the nation (Zerzan et al., 2010). Zerzan and colleagues (2010) describe a purpose of the research is to produce information on how the variation in opiate use relates to a patient's outcome to improve the end-of-life transition. Zerzan and colleagues (2010) were rated a 2+ based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Maltoni, Miccinesi, Morino, Scarpi, Bulli, Martini, Canzani, Dall'Agata, Paci, and Amadori (2012) investigated the benefits of palliative sedation used for hospice patients experiencing refractory symptoms. Maltoni and colleagues (2012) conducted an observational, prospective, cohort study in two Italian palliative care units with their focus on documentation of clinical practice of palliative sedation. Refractory symptoms can be defined as symptoms that one experiences that are uncontrolled in an adequate amount of time despite the utilization of an aggressive usual treatment regimen. The purpose of their research included the following: investigation of the clinical process, observation, and examination of patient's survival time from the use of palliative sedation. The study was conducted over a nine-month period from October 2009 to June 2010 with a sample of (n=327) patients admitted to two separate Italian hospices with 11 beds. Maltoni and colleagues (2012) used descriptive statistical analyses and SAS to generate results. The total number of participants included Hospice A with 63.6% (n=

208) and Hospice B with 36.4% (n= 119). The median age for hospice A was 66 years old and Hospice B was 77 years old (P value = 0.005). Duration of hospice stays were the following: 13.5 days versus Hospice B 18.3 days (P<0.005). The following were the death rates of the hospice patients: Hospice A = 57%, Hospice B = 89.9% (P<0.0001). Patients involved in the decision-making process regarding sedation were Hospice B (59.3%) significantly higher than patients in Hospice A (24.4%) with (P=0.007). Overall, there was no effect on the survival time of patients with the utilization of palliative sedation. Maltoni and colleagues (2012) monitored the following: date of entry, reason for admission into hospice, source of request, and date of death or discharge from the hospice. The utilization of benzodiazepines was the focus of controlling refractory symptoms (Maltoni et al., 2012). Average length of stay in both hospices was Hospice A = 13.5 days and Hospice B = 20.3 days (P=0.0001). Therefore, Hospice B has a greater proportion of longer stays. Overall, 31.9% of the 226 patients died in hospice with 25.2 % belonging to Hospice B and 37.8% belonged to Hospice A. The prevalence of refractory symptoms were delirium (61.1%), existential distress (37.5%), dyspnea (29.2%), and pain (20.8%) used as a reason to implement palliative sedation. When PS was implemented, the prevalence of patients receiving morphine was 87.5%, receiving neuroleptics was 37.5%, and receiving benzodiazepine was 76.4%. Morphine (87.5%) was the most widely utilized opioid. Haloperidol was the neuroleptic of choice and Midazolam (95.8 %) following lorazepam. Average overall survival calculated from admission to death in Hospice A was 18 days and in Hospice B was 10 days (P=0.205). However, mean survival time in both hospices between when sedated and non-sedated population died in hospice was 11 days sedated (n=72) and nine days non-sedated

(n=154). The death rate was higher among Hospice B (89.9%) versus Hospice A (52.7%).

The Italian geographical setting of the hospices can be portrayed as a bias threat or limitation to this study. Another limitation includes the proportion of existential distress and delirium in two hospices that can be attributed to clinicians' difference in interpreting hospice patient's symptoms. Utilizing case mixes can impact healthcare decision making due to cultural, professional, and background differences and changes in medical decision making. One example of the case mix difference is Hospice A's population was admitted proportionately more acute symptoms than that of Hospice B. In conclusion, palliative sedation is an appropriate clinical procedure in patients with advanced cancer; furthermore, well-monitored PS for refractory symptoms does not have a detrimental effect on survival. Maltoni and colleagues (2012) were rated a 2+ based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Kutner, Bryant, Beaty, and Fairclough (2007) conducted a descriptive study to analyze the time course and characteristics of symptom distress and QOL in hospice/palliative care setting. Kutner and colleagues (2007) identified the primary goal of palliative care was to alleviate distressful symptoms and enhance the patient's quality of life. Kutner et al. (2007) explained the significance in identifying the following in the end-of-life transition: most prevalent distressful symptom, change over time, factors that contribute to both symptom distress and decreased QOL. Kutner and colleagues (2007) explored two hypothesis: first the difference in symptom incidence, prevalence, and distress scored over time are associated with patient's age, diagnosis, functional statues.

Kutner et al.'s (2007) second hypothesis is that symptom distress correlates with a reduced QOL in hospice and palliative care populations. The population Kutner and colleagues (2007) utilized in the study included patients (N=66), nurses (N=49), and caregivers (N=49) among 11 hospice palliative care organizations geographically located; 10 from Colorado and one from Illinois. Trained hospice staff members collected the data through patient interviews (Kutner et al., 2007). Data collection was conducted at care enrollment, one-week and two-week enrollment, and for patients who survived two weeks, data was obtained monthly (Kutner et al., 2007). The amount of data collected decreased over the two weeks in relationship to the patient dying. Therefore, analysis for Kutner and colleagues (2007) date was collected through a total of 17 days following admission to the hospice/palliative care organization. Kutner et al. (2007) utilized the following tools: the Memorial Symptom Assessment Scale (MSAS) to measure physical symptoms and Psychological Symptom subscale score (MSAS-PSYCH) to measure psychological symptoms. The two open-ended questions focused on opinion of most distressful symptom and why. Researchers used the MDQOL to measure the quality of life among advanced cancer patients. They used the Karnofsky Scale to measure the patient's functional status. Kutner and colleagues (2007) collected the following variables from the patient population: sex, age, race/ethnicity, marital status, and the referral source, date of admission, diagnoses, and treatment setting. The nurse participants provided the following data: years of hospice experience, amount of time spent with patient, patient environmental location and/or change of stay, and sources of information used with patients. Caregivers provided the following information: age, sex, relationship with the patient, length of time providing care, and any source of information

used to complete forms (Kutner et al., 2007). Study authors analyzed data for statistical significance with Proc Mixed (Kutner et al., 2007). Kutner et al. (2007) identified the following demographical data results: mean age was 72 years, most participants were non-Hispanic, white (95%), more participants were female (53%), 49% had a college or graduate degree, and 58% are married or in a committed relationship. Kutner and colleagues (2007) identified symptoms measured by MSAS during days 0–17 with the most prevalence was lack of energy (92%), pain (82%), dry mouth (75%), and shortness of breath (73%). However, the study identified pain as the most distressful symptom reported by both patients and their proxies (Kutner et al., 2007). The MSAS and MQOL scale scores indicated pain contributed to increasing overall symptom distress. Distress from the symptom pain decreased during the first week after admission and the MQOL tended to improve closer to death (Kutner et al, 2007). Kutner and colleagues identified that mean distress from physical, non-pain symptoms have a significant association with increased pain. Mean pain distress increased by 0.61 points with MSAS nonpain physical symptom distress score (Kutner et al., 2007). A positive correlation was identified with QOL in cancer patients and increasing age (Kutner et al., 2007). However, psychological distress had a negative association with the QOL score. Kutner et al. (2007) illustrated the increased prevalence of distressful symptoms was significantly associated with pain experience and psychological symptom distress was associated with decreased quality of life. Kutner and colleagues (2007) illustrated "distress due to pain was associated with the presence of nonpain symptom distress" (p.234). Kutner et al. (2007) identified the need to research studies of interventions aimed at decreasing symptom distress in this population.

Sampling biases in this study include a limitation with the study's small sample size. The limitation is missing data, patient participation continued to decline in relation to patient's death, and missed assessments were not recorded (Kutner et al., 2007). Another sampling bias is due to lack of racial/ethnic diversity; therefore, limiting the study's findings to be generalized to other ethnicities. Kutner and colleagues' (2007) research supports the significance for an evidence base to guide symptom treatment interventions within this vulnerable hospice population. Kutner and colleagues (2007) were rated a 2- based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Johnson and colleagues (2005) investigated the prevalence of symptoms for hospice patients and barriers and illustrated that the highest priority for these organizations is symptom management. Johnson and colleagues (2005) conducted a descriptive analysis study that identified barriers to effective symptom management from a hospice nurse's perspective. The second goal of Johnson and colleagues' (2005) research was to illustrate how symptoms vary among individual hospice patients. The overall goal was to improve symptom management for terminally ill patients during the end-of-life transition (Johnson et al., 2005). Participants in the study included hospice nurses currently practicing clinically in a hospice organization and affiliated with Population-based Palliative Care Research Network (PoPCRN). The organization PoPCRN encompassed 128 hospice organizations geographically located in the United States and Canada (Johnson et al., 2005). Researchers surveyed the clinical care nurses from participating hospice organizations between April and August 2002 (Johnson et al., 2005). Johnson and colleagues (2005) used a theoretical model based on a literature

review for symptom management in hospice care. The symptom management model consisted of following five steps: symptom recognition, symptom assessment, care plan design, implementation, and reassessment (Johnson et al., 2005). Johnson and colleagues utilized this model during the development of the surveys. The survey encompassed four sections with an overall total of 25 questions. Section one included demographic data; section two had nurses identify information resources (guidelines and/or protocols) used to guide plan of care; in section three nurses identified the five most prominent symptoms based on their experience; and section four allotted the nurses to identify barriers to effective symptom management (Johnson et al., 2005). There were (N=867) clinically active hospice nurse participants from (N=67) hospices located in the U.S., permitted a total of six weeks to complete and return the surveys (Johnson et al., 2005).

Johnson and colleagues (2005) utilized the SPSS (11.0 Version) statistical software for analyses and interpretation of collected data. The demographic results were identified as the following: mean hospice experience (10.5 years); Registered Nurses (64%); Bachelor in Science of Nursing (26%); Licensed Practical Nurse (9%); Nurse Practitioner (1%); (80%) provided hospice care in the patients' homes (Johnson et al., 2005). According to Johnson et al. (2005), out of 32 common symptoms the data revealed nurses reported the following symptoms the most difficult to manage: agitation (45%), pain (40%), dyspnea (34%), confusion (33%), and pressure ulcers (27%). Johnson and colleagues (2005) illustrated the most common barriers to effective symptom management were the following: 34% reported the inability for family caregivers to implement of maintain recommended treatments; 38% recommended treatments not accepted by family or caregivers; 37% reported competing distress from

other symptoms; and 33% accepted the symptom as a consequence of current treatment. According to Johnson and colleagues (2005), each of the top 15 symptoms illustrated statistical significant differences ($P<0.0001$) in their rankings of barriers associated with each symptom. Results for Group A barriers to management of symptoms of pain, dyspnea, and nausea were the following: 43% reported the inability for family care providers to implement or manage recommended treatments and 41% did not want recommended treatments (Johnson et al., 2005). Group B's two most common barriers to management of symptoms of irritability and anger were the following: 53% reported families not viewing the symptom as a problem; 47% reported competing demand between other symptoms, and 43% of families did not want the implementation of recommended treatments (Johnson et al., 2005). Group C's barriers to management of symptoms pain, dyspnea, and nausea were the following: 43% reported the inability for family care providers to implement or manage recommended treatments; 41% did not want recommended treatments (Johnson et al., 2005). According to Johnson and colleagues, 43% of hospice nurses reported feeling "often" or "almost always" successful in symptom management. According to symptom management, nurses reported the following prevalence relieving specific symptoms: pain (96%), constipation (85%), nausea (84%), and least success in relieving hospice patients with weakness (7%), fatigue (11%), and anorexia (11%). Johnson and colleagues reported that nurses were able to illustrate success in relieving Group A's distressful symptoms over both Group B's and Group C's. Over (92%) of the nurses reported their hospice organization used a guideline or protocol to address specific symptom relief (Johnson et al., 2005). Nurses reported the following mean utilization of symptom management protocol: Group A

(75%), Group B (32%), and Group C (33%) (Johnson et al., 2005). Nurses reported various sets of barriers that differed among specific symptoms. According to Johnson et al. (2005), the following two barriers were directly related to specific symptoms within each specific group. In Group A, researchers identified the most prominent symptoms (pain, dyspnea, and anxiety) and barriers to effective management as treatment implementation and the patient-family-provider triad. In Group B, researchers identified the most prominent symptoms (fatigue, weakness, and anorexia) and barriers to effective management as the perception that other more distressful symptoms takes precedence and the symptoms were acceptable side effects from other treatment regimens. In Group C, researchers identified the most prominent symptoms (depression, anger, and/or irritability) and broader barriers to effective management as inadequate symptom identification, insufficient provider knowledge, problems with implementation of treatments, and patient or healthcare providers do not believe the symptom is problematic. Johnson and colleagues identified that symptom distress from pain remains prevalent and there is a gap in knowledge to design effective symptom management interventions specifically targeted to hospice populations. Data from Johnson and colleagues' (2005) study illustrates the significance of involving hospice healthcare professionals, nurses, and caregivers in the development of interventions to manage and address potential barriers to effectively improve patient outcomes. Johnson et al. (2005) explained the significance of the intervention to including the triad (patient/care giver/provider) on improving in effective communication. Johnson and colleagues (2005) illustrated that the collaboration of perceptions amongst professionals, patients, caregivers, and/or family combined outcomes from the implementation of interventions

collaborated with various solutions from multiple perceptions. Johnson and colleagues (2005) identified the importance of continuously delivering enhanced education to both nurses and family/caregivers. Both groups benefit from education through improvements in comfort care, confidence with implementation of pharmaceuticals and/or standard protocols, and overall improvement in patient outcomes with symptom management (Johnson et. al., 2005). Johnson and colleagues (2005) illustrated an effective dyspnea intervention that encompassed three steps. First, focus hospice provider training on the assessment and treatment of dyspnea; next, the distribution of written resources to patients and/or family caregivers highlighting strategies to manage breathlessness; and then, implementation of a dyspnea care plan (Johnson et al., 2005). Johnson and colleagues identified the significance of hospice organizations to establish of a plan of care for specific daily symptom measures and provision of follow-up support. Johnson and colleagues (2005) reported 40% of nurses reported pain as their most difficult symptom to manage; however, nearly all groups reported success in treatment of pain. Strengths of their study included utilization of a large sample size and wide hospice representation (Johnson et al., 2005). Study authors identified one limitation as the following: the 15 defined barriers from where nurses choose their selection does not entirely capture the importance of perceived barriers (Johnson et al., 2005). There is reporting bias regarding hospice nurses as the only participants and the inherent study survey design (Johnson et al., 2005). Another limitation is barriers were identified for specific conditions and do not reflect clusters of multiple symptoms experienced in combination. Johnson and colleagues (2005) illustrated the importance for additional research on multifaceted interventions to target barriers that reduce symptom distress and

improve the quality of life in dying patients. Johnson and colleagues (2012) were rated a 3 based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

The purpose of this literature review study was to evaluate various combinations of medications used in hospice and palliative care patients to optimize symptom control. Rose and Currow (2009) identified that hospice's patients can have a combination of symptoms occurring simultaneously. At times, declining patients lose their ability to swallow and an alternative route of drug administration should be effective in managing symptoms. Therefore, the focus of their literature review was to study medications that manage symptoms in patients who are unable to take medications orally. Rose and Currow (2009) indicated that a current risk of utilizing combined medications has been focusing of the "vitro compatibility studies of new medication combinations" instead of analyzing traditional medication combinations. Medications have the capability to react with one another on a molecular basis causing inactive compounds (lessened effect), increased risk for toxicity (increased effect), adverse reactions, or visual incompatibility (Rose and Currow, 2009). An interesting fact is that solubility and pH of medications are directly related and if effective on one another, a precipitate can be formed (Rose and Currow, 2009). The combination of morphine sulfate, dexamethasone, and haloperidol immediately forms an immediate precipitate and causes loss of potency in both dexamethasone and haloperidol (Rose and Currow, 2009). The incidence of chemical incompatibility with combining specific medications is considered worse because it is non-visible (Rose and Currow, 2009). There are varieties of drug combinations being utilized in hospice and palliative; however, empirical chemistry does not take into

account the enormous amount of drug combinations already used in current practice (Rose and Currow, 2009). Storing combinations of medication in cool or various environments requires the influence of research performed by laboratory chemistry (Rose and Currow, 2009). Rose and Currow illustrated fentanyl remained stable between 5ºC and 38ºC for one week. Midazolam in cooler temperatures decomposed 12% per week when stored at 38º. Therefore, to maintain stability, fentanyl and midazolam could be prepared up to seven days prior to use of a refrigerator (Rose and Currow, 2009). Additionally, they identified that quality laboratory data is required to strengthen best practice in the utilization of combing medications to manage multiple symptoms experienced by hospice or palliative care patients (Rose and Currow, 2009). According to Rose and Currow (2009), "chemical compatibility has to be the gold standard and systematic inquiry of all the subcutaneous and epidural combinations used in routine hospice and palliative care practice." The need for additional research on utilizing medications in combination is to reduce variations in hospice and palliative care patients overall outcome. Rose and Currow (2009) were rated a 4 based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

Eighty percent of actively dying patients reported that they experienced pain as a symptom in end-of-life-care (Zerzan et al., 2010). In comparison, Conill and colleagues (1997) reported pain does not have a higher prevalence at the end-of-life transition. Thirty percent reported pain during the last days compared with 52.3% at the patient's initial evaluation. In comparison, researchers found that cancer patients, during the end-of-life transition, reported a higher prevalence of pain (78%) than noncancer patients

(49%) (Tranmer et al., 2003). Maltoni and colleagues (2012) suggested "palliative sedation has been defined as the use of sedative medication to relieve intolerable suffering from refractory symptoms by a reduction in patient consciousness, and has been one of the most important approaches to refractory symptom control" (p.2830). The clinical decision to implement palliative sedation was utilized to relieve refractory symptoms, delirium, existential distress, dyspnea, and pain (Maltoni et al., 2012). The prevalence of these symptoms where palliative sedation was implemented was delirium (61.1%), dyspnea (29.2%), pain (20.8%), existential distress (37.5%), and distress (7%) (Maltoni et al., 2012). As indicated by Conill and colleagues (1997) "pain does not have a high prevalence at the end of life (30%, during the last days compared with 52.3% at the first evaluation" (p.330).

However, Kutner and colleagues (2007) state that pain (82%) and shortness of breath (73%) had high prevalence as a distressful symptoms experienced at the end-of-life. In comparison, Johnson and colleagues (2005) wrote that 867 hospice nurses reported that out of the frequently selected "difficult to manage" symptoms during end-of-life transition, each symptom received the following responses: pain (340), dyspnea (289), and anxiety (182). According to Johnson and colleagues (2005) "while 40% of nurses selected pain as one of their 5 most difficult to manage symptoms, all reported success in treating pain" (p.76). Multiple symptoms must be treated simultaneously in end-of-life care, for example, the treatment of pain coexisting with anxiety or shortness of breath (Rose & Currow, 2009).

2.7 Anxiety.

Anxiety has been identified as a problematic symptom frequently experienced during the end-of-life transition and has been associated with decreased quality of life in hospice patients. Klinkenberg and colleagues (2004) reported that 1 out of every 3 patients in their research experienced the symptom anxiety with a prevalence of 31% as a burden during the last week of life. According to Conill et al. (1997), a higher prevalence of anxiety, at 45.5%, was found to be a distressful symptom over pain at 30.1% in patients during their last seven days of life. However, during the first week assessment of these patients, anxiety 50.6% was found with a lower prevalence than pain (52.3%) (Conill et al., 1997). In comparison, Kehl and Kowalkowski (2012) reported across multiple studies the weighted prevalence of anxiety had been low at 10.79%.

2.8 Morphine.

In a study conducted by Mercadante, Villari, and Casuccio (2010), physicians' knowledge and attitudes regarding hospice, cancer pain, and preferred methods of pain were assessed. The following information was gathered from122 hospices geographically located in Italy: provision, medication preferences, preferred route of administration, methods to choosing dosage, and choice of BcP medication based on opioid administered for background analgesia. Mercadante et al. (2010) indicated that immediate-release morphine may take up to an hour to produce effective analgesic relief for patients; furthermore, oral transmucosal fentanyl (OTFC) was shown to be more effective than morphine. Phone interviews with hospice physicians were conducted collecting the following information: number of unit beds, provision of BcP medication,

drug of choice, preferred route of administration, method utilized to choose dose, choice of BcP medication based on opioid administered for background analgesia, and comments. The data collected by Mercadante and colleagues (2010) was analyzed using SPSS Software. The 122 hospices that participated in the study had a combined total of 1,375 beds with a mean of 11.2 (± 4.5) beds for each hospice unit. Oral morphine was the drug of choice for BcP; physicians from various hospices reported 93 for morphine out of 122 hospice facilities. The most prominent route of administration was oral 54 out of 122 hospices reported. Appropriate management of BcP enhances the hospice patients' quality of life (Mercadante et al., 2010).

There are several identifiable threats to validity or limitations to this study. First, geographical bias as the study utilized data from Italy and did not include information from other countries. The sample size was too small. Another limitation to the study is the diverse experience, education, and knowledge of BcP medications by hospice physicians. A larger amount of hospices that participated in the research were from Northern Italy in comparison to Southern Italy. According to Mercadante et al. (2010), Italy has an "unequal provision and access to palliative care services across the country." Southern Italy and the islands had fewer hospice organizations "confirming differences in economic development" amongst the various regions (Mercadante et al., 2010). These differences interfere with essential statistical comparison OTFC was inaccessible in four of the hospices causing an additional limitation. Mercadante et. al. (2010) were rated a 3 based on their level of quality through application of the Scottish Intercollegiate Guidelines Network (SIGN) criteria (See Appendix A).

One study utilized Morphine 50mg/mL administered by route oral, sublingual, or bucally and found that oral trans mucosal absorption was 18% effective (Wowchuk et al., 2009). Furthermore, Wowchuk and colleagues (2009) identified opioids as the most important medication to address symptom management of pain and dyspnea in palliative or hospice care. Care providers used morphine for two of the most recurrent symptoms that occur during end-life-of life: pain and dyspnea (Bishop et al., 2009). Another study identified that care providers used morphine most frequently for cancer breakthrough pain (Mercadante et al., 2010). Patients and providers managed breakthrough cancer pain mostly with opioids as the chosen rescue medication administered in addition to the patients' continuously scheduled analgesic (Mercadante et al., 2010). Opioids deliver immediate release while morphine may take up to as long as an hour to produce analgesia effect (Mercadante et al., 2010). Palliative sedation widely utilized morphine; Maltoni and his team (2012) reported that 87.5% patients received the analgesic morphine.

2.9 Other Analgesics.

Hospice physicians that treated breakthrough cancer pain reported oral trans mucosal fentanyl (OTFC) in some hospices was unavailable and stated that the choice of pain medication should be based on the best cost-efficacy ratio (Mercadante et al., 2010). New formulations of fentanyl are proven to be more effective than morphine with a rapid onset of analgesic and improved tolerance by patients (Mercadante et al., 2010). Oral trans mucosal fentanyl (OTFC) has been limited in usage due to the issues surrounding the cost of the medication (Mercadante et al., 2010). One study identified hydromorphone 10mg/mL injectable preparation was five times more effective than morphine and that a decreased volume of this medication can be administered in this

vulnerable population who potentially have an increased tolerance to opioids (Wowchuk et al., 2009). In a study by Wowchuk and colleagues (2009), methotrimeprazine 25 mg/mL was used as a neuroleptic with a broad-spectrum versatility to address pain, nausea, and dyspnea in hospice patients during end-of-life symptom management. Another study identified five classes of medications commonly used in end-of-life care as: opiates, NSAIDS, adjuvant pain medications (tricyclics and anti-seizure medications), stimulants, and antianxiety medications (Zerzan et al., 2010). Opiates were utilized less in homes than in established facilities (Zerzan et al., 2010).

2.10 Anticholinergic.

One study revealed scopolamine transdermal gel 0.25mg/ 0.1 mL compounded addressed the symptom of retained respiratory secretions, they identified the gel's ability for easier dose titration for caregivers, and the positive impact with the rapid onset of delivery to patient (Wowchuk et al., 2009). Atropine, glycopyrrolate, scopolamine, and scopolamine derivatives were utilized to address symptomatic crises caused by noisy secretions (Kintzel et al., 2009). This study reported that patients treated with glycopyrrolate were much more likely to have a response than those treated with scopolamine and two patients reported experiencing hallucinations with atropine administration (Kintzel et al., 2009). Atropine overdose or toxicity has been a potential side effect along with rebound sialorrhea, increased heart rate, dysrhythmias, short duration of medication effect, and increased effects in debilitated end-of-life patients (Kintzel et al., 2009). According to Kintzel et al. (2009) glycopyrrolate has less effect on the heart rate and rhythm than atropine. Prochlorperazine was chosen by another hospice

agency because it satisfied criteria in the treatment of nausea and vomiting (Bishop et al., 2009).

2.11 Benzodiazepines.

Lorazepam 1 mg SL tablets have anxiolytic and sedative properties and can also show effectiveness for usage in the treatment of anticonvulsant therapy (Wowchuk et al., 2009). In one study, non-topical oral benzodiazepine was utilized to treat agitation emergencies in home hospice patients (Bishop et al., 2009). Palliative sedation for controlling of refractory symptoms has been carried out through the physician's order of benzodiazepines administration to patients (Maltoni et al., 2012). Midazolam (95.8%) and lorazepam were the most commonly used benzodiazepines for facilitation of palliative sedation (Maltoni et al., 2012). The most widely utilized benzodiazepine in the survey was identified as midazolam (Rose & Currow, 2009).

2.12 Medications used in Specific Terminal Illnesses.

One study identified the importance of utilizing the following medications to address symptomatic crisis in cancer patients (Sera et al., 2014). These medications were opioids, antipsychotic agents, corticosteroids, and antiemetic agents. Sera and colleagues (2014) indicated terminally ill dementia patients' medication regimens to control symptomatic crisis should have included the following: non-opioid analgesics, vitamin/supplements, and antiplatelet. This study also indicated the importance to administer bronchodilators in hospice patients with lung disease.

2.13 Route of Administration.

A hospice patient's status can change instantaneously during end-of-life care regarding medication requirements for symptoms as well as the route of medication delivery (Wowchuk et al., 2009). Wowchuk and colleagues (2009) identified the importance that the route of administration be simplified for administration by families or professional healthcare personnel unfamiliar with the utilization of subcutaneous routes. Stocked comfort kits in hospice patient's homes should include the following routes of administration: bucally, sublingual (SL), or transdermal (Wowchuk et al., 2009). Oral, sublingual, and rectal were all common pathways for the administration of medications found in comfort care kits (Bishop et al., 2009). There have been several reasons to avoid routinely prescribing and dispensing parental medications to hospice patients being cared for at home including the relative complexity of administering medications intravenously or subcutaneously by lay personnel, and the patient's preferences to avoid injections or pain. However, according to Bishop and colleagues (2009), at times urgent control of escalating pain, severe dyspnea, delirium, or seizures that have been complicated symptomatic episodes may require administration route intravenously to manage the crises.

Glycopyrrolate and scopolamine are both medications that were primarily effective when administered by subcutaneous route; however, there has been minimal data regarding safety usage among the subcutaneous route (Kintzel et al., 2009). Hospice physicians treated breakthrough cancer pain with morphine administered by parentally, subcutaneous, or oral administration (Mercadante et al., 2010). A majority of hospice physicians reported utilization of parental morphine in treatment of breakthrough cancer

pain in comparison to oral morphine, which had an inappropriate delayed analgesic effect (Mercadante et al., 2010). In palliative care, when the oral route of medication administration becomes unavailable due to difficulty swallowing, vomiting, bowel obstruction, or decreased level of consciousness the subcutaneous route of administration for medication has been preferred (Rose & Currow, 2009). Rose and Currow (2009) identified that when specific delivery of medications through transdermal, intranasal, nebulized, rectal, or sublingual administration was unattainable, subcutaneous administration of medication has been the most widely utilized route of long-term administration. Regular subcutaneous route avoided problems with recurrent intravenous cannulation, had a positive depot effect, and allowed the delivery of medications in bolus or by continuous infusion (Rose & Currow, 2009). The transdermal route was not recommended with medications such as methotrimeprazine, cyclizine, chlorpromazine, prochlorperazine, trifluperazine, and diazepam because they caused skin reactions during administration (Rose & Currow, 2009).

2.14 Comfort Care Kits.

Comfort care kits have had a variety of specific medications employed to control problematic symptoms or crisis such as pain, dyspnea, anxiety, agitation, nausea, or fever that occurred among hospice patients. Caregivers utilized comfort care kits for the escalation of distressing symptoms and crisis admissions to hospice (Wowchuk et al., 2009). Wowchuk and colleagues (2009) explained that comfort kits contain pharmaceuticals commonly required in the final days of life to manage symptomatic crises. Administrators chose the medications for inclusion in the kits carefully based on their versatility to address more than one symptom encountered by hospice or palliative

care patients (Wowchuk et al., 2009). The medications included in comfort care kits were the following: opioid and non-opioid analgesic, antiemetics, corticosteroids, laxatives, and antipsychotics (Sera et al., 2013). Medication kits for symptomatic episodes placed in hospice patients' homes have been an essential initiative to maintain quality comfort care in this vulnerable end-of-life population (Wowchuk et al., 2009). Eighty percent of those hospice patients who desired to spend their last days at home used palliative medication kits and were able to achieve the desired outcome by being able to have experienced death at home (Wowchuk et al., 2009).

Hospice patients utilized comfort care kits when experiencing episodes of distressing symptoms. When the patient experienced a symptomatic crisis, the caregivers at the residence were able to administer a rescue medication after they notified the hospice agency. The nurses educated the caregiver regarding which symptoms to address with comfort care kits including pain, dyspnea, nausea/vomiting, seizures, acute anxiety, agitation/delirium, noisy secretions, and fever. According to Bishop and colleagues (2009), noisy secretions and fever were additional symptoms identified; medications used were an anticholinergic for secretions, such as atropine or hyoscyamine, and acetaminophen for patient's fever. Experiencing symptomatic crisis during the end-of-life transition can be devastating to both patients and their loved ones. The terms used by hospice agencies to describe the comfort kits included the following: emergency kit, symptom relief, relief kit, and comfort (Bishop et al., 2009). Hospice initiated these medications through comfort care kits left at the patient's residence for emergent situations.

2.15 Patient and Caregiver Education.

Many hospice patients rely on care administered by a family member or person without medical experience. Hospice agencies must educate caregivers on the medication regimens and medications that address the individual patient's symptomatic crisis as needed. According to Kehl and Kowalkowski (2012), in home hospice, patients' informal caregivers are their primary care providers for complicated symptom management. These families reported feeling unprepared for these multi-symptom changes that occurred during the last two weeks of the patient's life. According to Kinzel et al. (2009), adverse events in hospice patients were difficult to identify because hospice did not implement routine monitoring of vital signs and laboratory tests; furthermore, patients were often unconscious prior to death. If a hospice patient's symptoms were unable to be controlled, the caregiver most often sought treatment for crisis at a local emergency room.

A study identified the significance to maximize symptom control in end-of-life patients through establishment of a clear plan of care involving the provision of comprehensive education to both end-of-life patients and their caregivers (Wowchuk et al., 2009). According to Conill and colleagues (1997), it is essential to provide information and facilitate appropriate communication regarding the appearance of probable symptoms to reduce distress for both the patient and their caregivers. Kits should be kept in secure locked containers to address short-term symptomatic episodes, imminent death, or until access to pharmacies becomes available (Wowchuk et al., 2009). Reports given by caregivers surveyed revealed feelings of non-preparedness and the desire for additional education or direction to support the choosing of which medications

to use to alleviate symptomatic crisis (Wowchuk et al., 2009). Wowchuk and colleagues (2009) suggested "dying is a natural process, combined with complications, distressed caregivers' loss of control, impaired communication, and lack of structure to facilitate coping with the approaching death in a proactive manner" (p.800). Healthcare providers in hospice agencies should have actively discussed terminal symptoms with hospice patients and their caregivers.

One study actively discussed what to expect, what symptoms occurred, how to approach the management of particular symptoms, reduce anxieties, and decrease the occurrence of hospitalizations in the hospice patient population (Wowchuk et al., 2009). A similar study demonstrated that hospice agencies must guarantee to patients and their families that symptoms experienced by the hospice patients will be addressed within the established plan of care (Bishop et al., 2009). Hospice agencies should provide educational handouts to the caregivers, patients, and their families illustrating the potential symptoms that commonly occur during the end-of-life transition.

Being able to identify the symptom and knowing how to treat symptomatic crises in hospice patients can improve outcomes and reduce anxieties surrounding death. One example, from Kintzel et al. (2009), stated it was effective to teach caregivers the interventions to utilize when noisy secretions occurred. Kintzel and colleagues (2009) reported placing patients in a semi-prone position, administering anti-secretion therapy, and at times, gentle suctioning was required. Subcutaneous administration placed fewer responsibilities on caregivers that administered medication and was convenient and increased accuracy in the delivery of medications (Rose & Currow, 2009). Symptomatic

crisis prevention, preparation, and ongoing education appear to be a consistent finding in all relative literatures utilized in the search.

2.16 Cost Effectiveness.

One of the two prominent reasons for emergent admissions to hospice or hospitals during end-of-life care has been poor symptom control, caregiver role strain, or the caregivers' inability to manage the hospice patient at home due to the increased complexity (Wowchuk et al., 2009). The study tried to illustrate that the utilization of kits in terminally ill hospice patients has been both cost effective and cost efficient (Wowchuk et al., 2009). According to Wowchuk et al. (2009), "this notion has been echoed in other studies, high lightening that "making do" with the available medications in the home versus having immediate access to appropriate pharmaceuticals to control symptoms in the last days of life has been a commonly emerging concern that greatly contributes to unplanned hospital admissions" (p.798).

Researchers identified that kit utilization often avoided hospitalizations or emergency room visits and could strategically impact the cost involved in the delivery of quality care (Wowchuk et al., 2009). In one retrospective survey study, 12 programs out of 16 estimated the cost of comfort care kits were less than $50 and four agencies estimated cost greater than $50 (Bishop et al., 2009). Compared to the cost of emergency room invoices and the cost of emergency transport, which according to Hatley and Patterson (2007) could cost from $415 to $1,218 or more depending upon the locale, $50 is a reasonable cost for placing a comfort kit in a hospice patient's home. Another study

identified that hospices cover the cost of enrolled patients and may have incentives to use less expensive medications to treat symptoms (Zerzan et al., 2010).

It has been important for hospice programs to provide all of the following interventions: quality comfort care; caregiver education regarding medications; and strategies for cost effectiveness. Readily accessible comfort kits for hospice patients can potentially avoid extraneous costs resultant of emergency room visits and EMS transport due to episodic symptom crises. According to Bishop et al. (2009), "eighteen agencies (85%) reported the kits often averted hospital or emergency department visits and two (10%) said that the kits occasionally avoided such visits" (p.40). Bishop and colleagues (2009) showed that complications occurred when relieving symptomatic crisis to hospice patients located in geographical rural communities. Many rural areas do not have access to pharmacies that are open twenty-four hours. Therefore, the evidence supports the implementation of comfort care kits in hospice patient's homes to ensure quality symptom management and avoidance of ER visits due to symptomatic crisis.

2.17 Synthesis

After the analysis of research articles (See Appendix F), the synthesis identified supporting evidence that multiple medications or interventions should be used to manage multiple symptoms at the end-of-life transition. The analyses of the selected articles were pertinent to improving clinical practice with multi-symptom management in end-of-life care. This synthesis found sufficient evidence to support the implementation of comfort care kits for symptomatic crisis and delivery of continuous education in hospice patients' home during end-of-life transition.

Evidence demonstrated that patients experience multiple symptoms during the end-of-life transition (Bishop et al., 2009; Conill et al., 1997; Johnson et al., 2005; Kehl and Kowalkowski ,2012; Kintzel et al., 2009; Klinkenberg et al., 2004; Kutner et al., 2007; Maltoni et al., 2012; Rose and Currow, 2009; Sera et al., 2014; Tranmer et al., 2003; Wowchuk et al., 2009; Zerzan et al., 2010). Of the evidence reporting symptomology the ratings were as follows: one study was graded 1+, five were graded as 2+, one was 2-, five of the studies were 3; and two of the studies were graded 4.

2.18 Summary

Multi-symptom management has been identified as frustration for both the patients and their caregivers. The literature has shown that ready access to rescue medications and education on administration can potentially alleviate the distressing symptoms and produce a positive outcome for the patient and caregivers.

Furthermore, patients in hospice care can experience multiple symptoms and complications; therefore, healthcare providers must be educated on the use of multi-symptom management and continuously review medication regimens based on the patient's current health status. For example, studies identified that hospice patients' ability to swallow medications can diminish rapidly and route of administration may need to be changed.

According to the literature, the most common multi-symptoms among hospice patients are pain, dyspnea, nausea, delirium, and increased secretions. Morphine was used to treat both pain and dyspnea and was the most effective (Bishop et al., 2009; Maltoni et al., 2012; Mercadante et al., 2010; Sera et al., 2014; Wowchuck et al., 2009).

Another analgesic proven to be effective was oral trans mucosal fentanyl (Mercadante et al., 2010). However, it was not a cost effective choice when compared to morphine (Mercadante et al., 2010).

The anticholinergic glycopyrrolate was shown to decrease secretions in hospice patients without the side effects caused by atropine (Kintzel et al., 2009). The benzodiazepine midazolam was the most effective to ameliorate the symptoms of anxiety or agitation (Maltoni et al., 2012; Rose & Currow, 2009).

Multi-symptom management is important to quality of life and reducing extraneous costs for patients such as emergency room visits. The literature supports that quality of life was improved and costs were reduced with multi-symptom management by healthcare providers and caregivers (Bishop et al., 2009; Rose & Currow, 2009; Sera et al., 2014; Tranmer et al., 2003; Wowchuk et al., 2009; Zerzan et al., 2010).

2.19 Recommendations

Based on the evidence illustrated from the selected studies, this review identified these recommendations to assist hospice agencies in improving the quality of care delivered during the end-of-life transition. These recommendations have been graded according to the Michigan Quality Improvement Consortium (2008) system (see Appendix B). They are based on the quality and amount of evidence available to support the recommendation for guidelines, practice parameter, or clinical policy.

1.) **Manage multiple symptoms in hospice patients' that increase during the end-of-life transition Evidence Grade A**. Assess and report changes in hospice patients. Recognize signs and symptoms of imminent death. It is imperative for an increase in

research to help identify the best treatments to utilize during episodes of pain crises in hospice patients during the end-of-life transition (Sera et al., 2014; Zerzan et al., 2010).

2.) **Maintain a symptom-free environment for patients and their families**. **Evidence Grade C.** Access to a pharmacy that operates 24 hours a day and never closed on holidays is required by all hospice agencies. In addition to dispensing oral or rectal medications for breakthrough symptom treatment, it is sensible for hospice agencies to develop the capacity to administer parental medications and guide further research to determine effectiveness of topical preparations for symptom management as shown by Bishop et al. (2009).

3.) **Provide education to the providers, caregivers, patients, and their families illustrating the potential symptoms that commonly occur during the end-of-life transition**. **Evidence Grade C.** Continuous provider, patient, and caregiver education on symptomatic crisis management improves the delivery of hospice care. Wowchuk et al. (2009), identified the significance to maximize symptom control in end-of-life patients through establishment of a clear plan of care involving the provision of comprehensive education to both end-of-life patients and their caregivers.

Kehl and Kowalkowski (2012) determined that both professional and informal caregivers need an understanding of what signs and symptoms to expect as death approaches. It is significant to improve assessment and management of commonly identified symptoms that occur during the end-of-life transition. According to Wowchuk et al. (2009), caregivers reported insecurity and insufficient information as main causes of distress when caring for a terminal patient in the home. Therefore, caregiver coping has a

greater chance of enhancement when programs provide education on a continuous basis. Wowchuk et al. (2009) recommend providing caregivers with a realistic portrayal of challenges or complications they might encounter while caring for hospice patients. They discussed what to expect, what symptoms occurred, how to approach the management of particular symptoms, reduce anxieties, and decrease the occurrence of hospitalizations in the hospice patients' population (Wowchuk et al., 2009).

4.) **Generate evidence to support consistent kit protocols that might facilitate improved symptomatic crises among the terminally ill population throughout any patient environment. Evidence Grade C.** According to Bishop et al. (2009) prospective surveillance studies on frequency of EMS transport, ER visits, and general inpatient hospital due to treatment of acute symptoms of pain, dyspnea, nausea, seizures, acute anxiety, or agitated delirium by hospice patients would be useful to frame the scope and extent of these clinical problems (p.42).

2.20 Implications

This quality improvement project based implications on conclusions and provides suggestions for implementing findings to clinical knowledge, practice, and changes to current policies (Burns & Grove, 2009). Current evidence has shown that the implementation of comfort care kits must be introduced at all levels of practice including both clinical and policy development.

2.21 Implications for clinical education.

In order to maintain comfort for the patient during the end-of-life transition, research shows that it is critical for hospice clinicians to continuously educate the patient

and caregivers regarding the prognosis and therapeutic interventions. Hospice clinicians must assess patients during multiple visits throughout the week, especially when a patient status has been identified as declining. Clinicians must also recognize the importance of multi-symptom management and be able to recognize signs and symptoms of imminent death in order to prepare both the patient and their loved ones. For example, hospice staff must be educated regarding how patients can lose their ability to swallow during imminent death and how proper delivery of medication has a serious impact on the patients overall symptom management during the end-of-life transition.

2.22 Implications for Practice.

Implication for symptomatic management in hospice practice was shown as the use, clinical efficacy, cost effectiveness, and impact of medication kit availability on hospice patients and their caregivers (Bishop et al., 2009). Further research was needed to illustrate that retained or excess secretions can affect the successful and accurate sublingual dose administration for any particular medication (Kintzel et al., 2009). Hospice practice should identify the healthcare providers' choice of prescribing medication and the comfort in use of opiates to treat patient symptoms (Zerzan et al., 2010). A limitation for subcutaneous route administration was identified by the invisible chemical incompatibilities that appeared in literature as continuous subcutaneous infusions become more prevalent in the treatment of symptoms during the end-of-life transition (Rose and Currow, 2009).

Bishop et al. (2009) highlights another significant issue for hospice practice. Currently, there are increased challenges to effectively managing symptomatic

emergencies for hospice patients located in rural geographical areas. Variables affecting patient's level of comfort management are dependent on factors such as the distance the hospice nurses have to travel to patient's residence, the road conditions encountered on the route to the patient's residence, and the adverse weather conditions or travel conditions overall (Bishop et al., 2009). Another implication for practice was the impact that rural pharmacies can have on an agency's ability to obtain essential medications for hospice patients. The rural pharmacy's medication supply, selections/variety, and ability to compound medications can influence the patient's overall treatment.

2.23 Implications for Policy Development.

Implications for policy development include federal regulations by Medicare requiring hospice programs to make provisions to prevent and manage crises as a condition for participation in the Medicare Hospice Benefit program (Bishop et al., 2009). The hospice benefit allows the patient and family to stay in the comfort of their home unless an inpatient admission has been shown necessary (Centers for Medicare & Medicaid Services, 2013). Hospice agencies have been required by law to monitor and report patient care processes and outcomes in order to improve quality measures for persons at the end of life. In 2008, the Center for Medicare & Medicaid Services (CMS) federally required all hospice programs to implement Quality Assessment and Performance Improvement Programs that have been data driven, systematic approaches to improve the delivery of care provided by all hospices (Scheck, Rokoske, Durham, Cagle, & Hanson, 2010). CMS contracted with Quality Improvement organizations located in both North and South Carolina to create quality measures and instruments to assess the delivery of hospice care (Schenck et al., 2010). The hospice agencies have

been mandated by federal law to identify any areas that need improvement and to strategically develop process improvement plans to enhance the delivery of care (Schenck et al., 2010). The National Consensus Project for Palliative Care identified eight domains and corresponding practice guidelines for high quality care for patients at end of life (Schenck et al., 2010). This was adopted by National Quality Forum and updated in 2009 as a guideline that targeted many domains including care of the imminently dying patients (Schenck et al., 2010). Therefore, they provided the hospice clinicians with ways to evaluate patients' responses to assigned treatments for symptom management (Schenck et al., 2010).

2.24 Summary

Managing symptoms in hospice patients can be complicated and requires an active approach by all individuals involved in the delivery of care to this vulnerable population. Comfort care kits should be implemented to every home hospice patient as an intervention to improve the patients' comfort during the end-of-life transition. This active approach to delivering quality care for hospice patients can potentially increase quality measures and outcomes in symptomatic management. However, additional research has been identified as a necessity to determine the use, clinical efficacy, cost effectiveness, and impact of comfort kits for symptomatic management. Other areas for future research include the influence of retained or excess secretions on sublingual administration of medication, a better understanding of injectable combination medications, and the significance to rural hospice patient's treatment of a local and accessible pharmacy with adequate supply and selection. Further evaluation of the National Consensus Project for Palliative Care practice guidelines is required in order to

determine its application, and value, in the rural setting. Provider education is essential for multi-symptom management.

Chapter 3 Design

Hospice and palliative care organizations promote the delivery of comprehensive comfort care to enhance their patients' quality of life during their end-of-life transition. Patients experience various distressful physical symptoms other than pain alone during the last phases of life and distressful symptoms often negatively effective a patient's level of comfort during this time transition (Bishop et al., 2009; Conill et al., 1997; Johnson et al., 2005; Kehl and Kowalkowski, 2012; Kintzel et al., 2009; Klinkenberg et al., 2004; Kutner et al., 2007; Maltoni et al., 2012; Rose and Currow, 2009; Sera et al., 2014; Tranmer et al., 2003; Wowchuk et al., 2009; Zerzan et al., 2010). It is evident that morphine is a prominent medication utilized for symptom relief during end-of-life care. However, morphine does not relieve various symptoms such as shortness of breath experienced during the dying process and can even potentially cause distressful symptoms from common side effects of opioid administration. A clinical challenge to enhancing the delivery of end-of-life care is to have the proper cadre of medications readily available during end-of-life that health care providers can utilize for multi-symptom management.

Best practices suggest that the cadres of medications be available to family members and the patients' caregivers for ready use. However, data warrant further review to determine which medications are best for managing end of life transitions, especially multi-symptom management. Effective 2015, all Medicare certified hospice

organizations are now federally mandated by Section 3004 of the Patient Protection and Affordable Care Act (ACA) to submit quality data through the Hospice Quality Reporting Program (HQRP) based on the most current HIS (Hospice Item Set) (CMS, 2015). Failure to submit quality data or meet HQRP requirements result in a 2 percentage point reduction in the hospice organizations Annual Payment Update. In 2014, Pain Measure had been the prominent symptom required to be assessed on admission and reported. However, as of 2015, the following quality measures are calculated utilizing the CMS (HIS): patients treated with an opioid who are given a bowel regimen; pain screening, pain assessment; dyspnea screening; dyspnea treatment; treatment preferences (CMS, 2015).

Application of Stetler's Model, utilization of the model developed by Johnson et al. (2005) Symptom Distress Model (Appendix C) in combination with key components of the literature synthesis will be used as the framework for this quality improvement project. The purpose of this project is to compare the provider's perceptions following an educational model of symptom management methods (single symptom management versus multi-symptom management) for improving the quality for hospice patients during the end-of-life transition.

3.1 Design

A descriptive survey pre and post-test design will be used to collect and analyze data from hospice nurses, medical directors, and clinical nursing directors' perceptions from their professional experience concerning a conglomerate of variants that effect the end-of life transition in hospice patients. The purpose of the survey is to glean a better

understanding of the provider's perceptions of using of comfort care kits in hospice care for single symptom versus multi-symptom management for improved patient outcomes. The survey consists of 8 questions and contains the following sections: what is the perception of symptoms among care providers/givers, which are the most prominent distressful symptoms experienced by hospice patients, and the pharmaceutical preference to treat distressful symptoms.

3.2 Instruments

The DNP project author developed a survey instrument based on the synthesis of the evidence in Chapter II, of which the survey has not been tested for reliability or validity. The instrument consists of eight items and contains the following sections: what is the perception of symptoms among care providers/givers, which are the most prominent distressful symptoms experienced by hospice patients, and the pharmaceutical preference to treat distressful symptoms. The purpose of the survey is to glean a better understanding of the provider's perceptions of using of comfort care kits in hospice care for multi-symptom versus single symptom management for improved patient outcomes. The survey was administered pre and post intervention to approximately 30 Clinical Nursing Directors, Licensed Practical Nurses, Medical Directors, and Clinical Nurse Supervisors, all of whom are employed in Hospice Care Organizations in SC. These participants accessed an electronic or paper survey at their home or office or by personal computer or smartphone with internet access to the World Wide Web.

3.3 Sample

Approximately thirty (n = 30) Clinical Nursing Directors, Licensed Practical Nurses, Medical Directors, and Registered Nurse Case Managers from hospice organizations located in South Carolina were surveyed pre and post intervention regarding their perception of symptoms, the most prominent distressful symptoms that are experienced by hospice patients, and the pharmaceutical preference to manage distressful symptoms. Inclusion criteria included: currently employed by one of the five hospice organizations, currently hold an active healthcare professional license in the state South Carolina, are over age 18, use English as a first language, and have access to a computer or smart phone with Internet capability.

3.4 Setting

Participants were recruited from five SC hospice organizations that are state and federally regulated to conduct hospice care. The five offices are located in Columbia, Greenville, Newberry, and Union Counties. Clinical Nursing Directors, LPNs, Medical Directors, and RN Case Managers accessed the electronic survey or hardcopy at their designated home office or by their personal computer or personal smartphone with internet access pre and post testing. Class Climate and SAS captured data.

3.5 Procedures

Following Institutional Board approval, data collection occurred pre and post testing by Class Climate. A list of potential study participants was derived from email addresses supplied by each participating hospice organization. The survey was administered pre-testing without any intervention (education module) by Class Climate to

participants by email or hard copy. Study participants completed the pre-test online and no personal identifiers were linked to the study participant. Participation was completely anonymous and completing the pre-test survey online or by hardcopy implied consent.

Once the pre-test was administered over a two (2) week period, hospice employees from all five hospice organizations participated in an educational presentation that contained information regarding comfort care kits and managing single versus multi-symptoms in hospice patients. The educational module consisted of one 30 minute session taught by the investigator. The components of the educational module included the following: a handout identifying common EOL signs and/or symptoms, definition of Comfort Care Kits, common medications prescribed in kits, and verbal explanation of this quality improvement project. Approximately two (1) weeks was needed to reach all five hospice organizations and employees for implementing the educational module. Educational sessions for staff were mutually arranged by the study author and each hospice care organization. Dates, times, and rooms for the educational sessions were arranged through each facility Hospice Clinic Director but conducted at the facility to minimize employee disruption and travel. Any multimedia tools or handouts used for the educational module were supplied by the study author.

Once all five participating hospice organizations and employees received the educational module, the investigator administered post two (2) weeks the post-test using the Class Climate method. The post-test was identical to the pre-test and was not being linked to any personal identifiers. Participation was completely anonymous and completing the post-testing survey online or by hardcopy implied consent. Table 3.1 depicts the process for data collection.

Table 3.1 Time Interval for Quality Improvement Project

Time Frame	Activity
Obtain IRB approval	Week One: February 1, 2016
Obtain Emails from HR Hospice. Administer Pre-test by Survey Monkey	Week One to Two: February 1-February13
Conduct Educational Module	Week Three-Four: February 14-Feburary 27
Administer Post-test	Week Five-Six: February 28-March 5

3.6 Description of intervention

The intervention, educational session, consisted of a single 30 minute module on the use of comfort care kits for multi-symptom management versus single symptom management for hospice patients. The presentation contained information on signs and symptoms that have been commonly encountered by hospice patients and cause discomfort. The handouts reinforced the importance in recognizing common signs and symptoms. The information also addressed which medications are used to treat symptoms commonly experienced in end-of-life care. Following the intervention, the healthcare participants were allowed to ask any questions related to the content. A hard copy of the quality improvement project and corresponding handout (Appendix D) were left in the conference room to be accessible to hospice healthcare providers interested in re-reading the content.

3.7 Data Analysis methods

The Class Climate and SAS programs was utilized to capture data for statistical analyses and then imported for descriptive data such as frequency tables; using SAS to conduct frequency distribution tables. The data was analyzed for differences between pre and post-testing to determine changes in perceptions, if any, of care providers in the use of single symptom management versus multi-symptom management in hospice patients transitioning to end-of-life. Dr. Abbas Tavakoli provided statistical support, expertise for analyses, and data management for importing data into *Excel* files.

3.8 Framework/model of research: Stetler's Model

Stetler's model has been used by first preparing the hospice registered nurses and other healthcare providers by making sure the agency was ready for systematically conducting a search for relevant evidence in practice (Melnyk & Fineout-Overholt, 2011). Stetler's second phase was used to assess a body of evidence, summarize the evidence for quality and validity, and identify a need through the systematic collection of evidence (Melnyk & Fineout-Overholt, 2011). Phase three was used to compare the responses from the survey and evaluate if the intervention combined with the guidelines proposed a change to current practice. The fourth phase of Stetler's model was used show translation or application of the intervention, with the implementation of placing comfort care kits instead of using only morphine alone with the hospice patients (Melnyk & Fineout-Overholt, 2011). In phase five, evaluation of the plan to improve emergent symptomatic outcomes in home hospice patients through the implementation of comfort

care kits before their end-of-life transition will be implemented and evaluated (Melnyk & Fineout-Overholt, 2011).

Johnson et al. (2005) developed and utilized a basic theoretical Symptom Distress Model. The Symptom Distress Model is defined in the 5 following steps: symptom recognition; symptom assessment; care plan design; implementation; and reassessment (Johnson et. al, 2005). This model can be utilized by the participating hospice healthcare providers as a tool during their daily patient encounters with symptoms.

3.9 Strategies to reduce barriers and increase supports

The influential participants in hospice agencies to present the information for change will be the board of directors, medical directors, and hospice clinicians. A barrier was the ease and accessibility of medications in a comfort care kit that can potentially be abused by the home hospice patient's caregiver. A strategy to reduce this barrier and increase support is to place comfort care kits in locked boxes of care givers that are suspected drug abusers. The registered nurse can unlock the box and administer the comfort medications when an emergent crisis evolves.

Another strategy that will increase support is to demonstrate to the hospice agency's board of directors, medical directors, and clinicians the cost effectiveness and accessibility of emergent symptomatic medications to achieve comfort in end-of-life care. Comfort care kits target the complicated symptomatic management that occurs after hours. Some home hospice patients live in rural areas and the nearest twenty-four hour pharmacy can be up to hour away from their residence. Therefore, another strategy will be to calculate the travel time, distance, and total amount of time the patient was without

comfort medications to alleviate symptoms. This quality improvement project data was given to the influential members at the hospice agency. It was identified as a cost effective measure to utilize comfort care kits for emergent symptom crisis during end-of-life transition due to the increased cost of unscheduled on call nursing visits, inaccessibility of twenty-four hour operating pharmacies, and unnecessary emergency room visits. The strategic process for implementing this intervention can be addressed with the most significant emphasis on providing quality comfort care to home hospice patients during symptomatic crisis.

3.10 Summary

Management of symptoms related to the end-of-life care in hospice patients can be complicated and requires an active approach by all individuals involved in the delivery of care to this vulnerable population. These comfort care kits are used to manage multi-symptoms in home hospices patients and can improve patient comfort. Comfort care kits also reduces unnecessary on-call nursing visits, unscheduled visits to deliver medications, improved prevention of emergency room visits, and are cost effective. Comfort care kits with multi-symptom management should be implemented to every home hospice patient as an intervention to improve the patients' comfort during the end-of-life transition. This active approach to delivering quality care for hospice patients can potentially improve quality measures and outcomes in symptomatic management.

Chapter 4 Results

4.1 Description of Sample

Out of the thirty Clinical Nursing Directors, Licensed Practical Nurses, Medical Directors, and Registered Nurse Case Managers from South Carolina hospice organizations, twenty-three responded (response rate was 77%) to the pre-test and post-test survey regarding their professional expertise and perceptions for single versus multi symptom management for end-of- life care in hospice patients. Pre and post intervention, participants were surveyed regarding their perception of symptoms, the most prominent distressful symptoms that are experienced by hospice patients, and the pharmaceutical preference to manage distressful symptom(s). The final sample (n = 23) was comprised of healthcare providers who were on call 24 hours per day, were employed by hospice organizations located in from Chapin, Columbia, Greenville, Irmo, Newberry, and Union, South Carolina, and delivered one-on-one care to hospice patients geographically located in rural and urban areas, albeit at home or at facilities.

4.2 Analysis of research questions

Table 4.1 depicts the participants' responses' to the pre-test survey. Frequency distribution tables are used for numeric variables. They summarize the distribution of values from the sample population. According to the hospice providers' pre-test responses, pain (35%) was the most prominent symptom witnessed by a provider during a patient's last two weeks of life. Dyspnea/SOB (44%) was identified as the most

distressful symptom witnessed by providers during a patient's last two weeks of life. Anxiety/restlessness and increased respiratory secretions were the most distressful symptoms for patients' families and/ or caregivers during a patient's last two weeks of life (35%) (Table 4.1).

Table 4.1 Pre-test Survey Frequency Distributions

	Anxiety/ Restlessness **%**	**Dyspnea/ SOB** **%**	**Increased Respiratory Secretions** **%**	**Pain** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, which symptom do you believe was the most prominent?	**17**	**22**	**26**	**35**	**0**
During your experience with managing symptoms during the patient's last two weeks of life, which symptom do you believe was the most distressful for patients?	**22**	**44**	**13**	**17**	**4**
During your experience with managing symptoms during the patient's last two weeks of life, which symptom do you believe was the most distressful for	**35**	**17**	**35**	**13**	**0**

patients' families and/ or caregivers?					

Table 4.2 depicts the participants' responses' to the additional components of the pre-test survey. Hospice providers' response rates regarding the most common medication utilized to address anxiety/restlessness during the end-of-life was oral Lorazepam. However, some participants reported using topical compound as opposed to the oral route. When providing relief for increased respiratory secretions, hospice providers' responses were divided amongst administering atropine (55%) or scopolamine transdermal patch/gel (46%). Morphine was reported as the pharmaceutical of choice to alleviate dyspnea/SOB and/or pain by all hospice providers.

Table 4.2 Pre-test Survey Frequency Distributions

	Oral Ativan (Lorazepam) **%**	**Oral Valium (Diazepam)** **%**	**Oral Xanax (Alpra-zolam)** **%**	**Topical Benzo-diazepine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve anxiety (if indicated)? If yes which one?	**74**	**0**	**0**	**17**	**9**

	Broncho-dilators **%**	**Cortico-steroid** **%**	**Hydro-Morphine** **%**	**Morphine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve dyspnea/shortness of breath (if indicated)? If yes which one?		**0**	**4**	**96**	**0**
	Atropine **%**	**Glyco-pyrrolate** **%**	**Scopola-mine trans-dermal Patch/Gel** **%**	**Oral Scopola-mine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve increased respiratory secretions (if indicated)? If yes which one?	**55**	**0**	**46**	**0**	**0**
	Acetamin-ophen/ other OTC Analgesic	**Fentanyl**	**Hydro-Morphine**	**Morphine**	**Other**

	%	%	%	%	%
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve pain (if indicated)? If yes which one?	**0**	**0**	**0**	**100**	**0**
	Atropine **%**	**Benzop-diazepine** **%**	**Scopola-mine** **%**	**Morphine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, which medication was predominantly used the most to improve the patient's level of comfort or outcome due to distressful symptoms?	**0**	**0**	**0**	**100**	**0**

Post Test survey, Table 4.3 data illustrates the provider's perceptions regarding common symptoms experienced at the end-of-life in patients. According to the hospice providers' responses, dyspnea/SOB (30%) was the most prominent symptom during a patient's last two weeks of life. Providers reported that dyspnea/SOB (44%) was also

the most distressful symptom for patients during a patient's last two weeks of life. Increased respiratory secretions (44%) was the most distressful symptom for patients' families and/ or caregivers to witness during a patient's last two weeks of life.

Table 4.3 Post-test Survey Frequency Distributions

	Anxiety/ Restlessness **%**	**Dyspnea/ SOB** **%**	**Increased Respiratory Secretions** **%**	**Pain** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, which symptom do you believe was the most prominent symptom?	**26**	**30**	**22**	**22**	**0**
During your experience with managing symptoms during the patient's last two weeks of life which do you believe was the most distressful symptom for patients?	**26**	**44**	**22**	**9**	**0**
During your experience with managing symptoms during the patient's last two weeks of life which do you believe was the most distressful symptom for patients' families	**26**	**17**	**44**	**13**	**0**

and/ or caregivers?					

Table 4.4 depicts the participants' responses' to the post-test survey which described providers' choices of medications in managing symptoms during the patient's last two weeks of life. There were some differences from the pre-test responses. Post testing, oral Lorazepam (78%) was reported as the most frequently administered medication to alleviate anxiety in hospice patients during the end-of-life transition. In the post-test survey, participants' response rate for using a topical benzodiazepine during the end-of-life care decreased. Morphine was reported the most prominent medication given in the last two weeks of a patient's life, however, some participants responses changed and included other (4%). Additionally, a variety of pain medications were reported being administered by hospice providers during the end-of-life transition. Whereas, prior to the educational module, the pre-test, only Morphine was reported as the choice of analgesic to relieve pain.

Table 4.4 Post-test Survey Frequency Distributions

	Oral Ativan (Lora-zepam) %	**Oral Valium (Diazepam)** %	**Oral Xanax (Alpra-zolam)** %	**Topical Benzo-diazepine** %	**Other** %
During your experience with managing symptoms during the patient's last two weeks of	**78**	**0**	**13**	**9**	**0**

life, did you use a medication to relieve anxiety (if indicated)? If yes which one?					
	Broncho-dilators **%**	**Corti-costeroid** **%**	**Hydro-Morphine** **%**	**Morphine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve dyspnea/shortness of breath (if indicated)? If yes which one?	**0**	**0**	**0**	**100**	**0**
	Atropine **%**	**Glyco-pyrrolate** **%**	**Scopola-mine trans-dermal Patch/Gel** **%**	**Oral Scopola-mine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve increased respiratory secretions (if indicated)? If yes which one?	**59**	**0**	**36**	**5**	**0**
	Acetamin-	**Fentanyl**	**Hydro-**	**Morphine**	**Other**

	ophen/ other OTC Analgesic **%**	 **%**	**Morphine** **%**	 **%**	 **%**
During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve pain (if indicated)? If yes which one?	**0**	**9**	**0**	**87**	**4**
	Atropine **%**	**Benzop-diazepine** **%**	**Scopola-mine** **%**	**Morphine** **%**	**Other** **%**
During your experience with managing symptoms during the patient's last two weeks of life, which medication was predominantly used the most to improve the patient's level of comfort or outcome due to distressful symptoms?	**0**	**0**	**0**	**96**	**4**

4.3 Conclusion

Frequency distributions were calculated for pre and post-test for each question for differences in participants' responses. Each question focused on common end-of-life

distressful symptoms and the providers' perceived preferred method of treatment to alleviate the symptom. In summary, results showed differences in responses between pre-test and post-test.

On the pre-test, hospice providers reported the most prominent symptom during the end-of-life was pain (35%) followed by dyspnea/SOB (22%). Whereas, the responses on the post-test indicated dyspnea/SOB (30%) followed by pain (22%). There was an increase by 10% in participants reporting anxiety/restlessness as a patient's common symptom in post-test results (26%).

Healthcare providers reported the most distressful symptom for the patient was dyspnea/SOB (44%) on both the pre-test and post-test. However, an 8% decrease was demonstrated among providers in reporting pain as most distressful symptom from pre-test (17%) to post-test (9%). Additionally, a 9% frequency increase was noted among providers reporting the presence of increased respiratory secretions from pre-test (13%) to post-test (22%). The hospice providers' response rate for the most distressful symptom for the patient's families or caregivers to witness demonstrated a 9% increase in the presence of increased respiratory secretions from pre-test- (35%) to post-test (44%).

The hospice healthcare providers' response rate on specific medications utilized to alleviate symptoms did not identify differences among response rates from pre to post test. Oral Ativan was the preferred method to alleviate anxiety/restlessness while morphine was used to alleviate dyspnea/SOB. Providers used atropine as the preferred method of treatment for respiratory secretions (pre-test 55% and post-test 59%). Scopolamine transdermal patch pre-test (46%) was used a major medication for respiratory secretions pre-test but not post-test (36%). Morphine was identified as the

preferred method to alleviate pain and the medication predominantly used the most to improve patient's level of comfort or outcome due to distressful symptom.

4.4 Summary

After the educational module, frequency data indicated that the perceptions of end-of-life care amongst providers was more encompassing for multi-symptom management versus single symptom management "pain". This data is consistent with the evidence based literature that demonstrates that providers should be more inclusive of multiple symptom management than single symptom management for improved outcomes during the end-of-life care for hospice patients. Educational Models in formal programs or continuing education need to include multi-symptom management for end-of-life patient.

Chapter 5 Discussion

5.1 Recommendations for Practice

According to the quality improvement project and consistent with the literature, comfort care kits should be delivered to hospice patients on admission with a plan that includes multi-symptomatic management in hospice practice for improved patient outcomes. Findings from the project underscored the need for providers to use multi-symptomatic management for improved outcomes with clinical efficacy, cost effectiveness, and an overall positive impact of medication kit availability on hospice patients and their caregivers (Bishop et al., 2009; Rose & Currow, 2009; Sera et al., 2014; Tranmer et al., 2003; Wowchuk et al., 2009; Zerzan et al., 2010). Comfort care kits contain medications that address multiple symptoms including pain, dyspnea, nausea/vomiting, anxiety/restlessness, agitation/delirium, noisy secretions, and fever.

The implementation of multi-symptom management guidelines integrate standards of care in clinical practice for managing multiple symptoms with improving quality of life during end of life transition (Anderson & Chojnacka, 2012; Wowchuk et al., 2009). Placing a comfort care kit into the patient's environment is a preventative measure to improve their quality of life. This is especially significant when hospice providers admit a patient who expires in less than twenty-four hours. Utilizing anticipatory multi-symptom interventions allow the patient's symptoms to be relieved

quickly, effectively, and results in improved outcomes and better standards of care (Anderson & Chojnacka, 2012; Kinley et al., 2013) Currently, there are increased challenges to effectively managing symptomatic emergencies for hospice patients located in rural geographical areas. Variables affecting patient's level of comfort management are dependent on factors such as the distance the hospice nurses have to travel to a patient's residence, the road conditions encountered on the route to the patient's residence, and the adverse weather conditions or travel conditions overall (Bishop et al., 2009). Another implication for practice was the impact of rural pharmacies limitations can have on an agency's ability to obtain essential medications for hospice patients. The rural pharmacy's hours of operation, medication supply, selections/variety, and ability to compound medications can influence the patient's overall treatment. Therefore, the implementation of ordering a comfort care kit on admission to hospice allows access to anticipatory medications during unexpected symptomatic crisis.

Consistent with the literature, this project identified that morphine is not the only medication needed in patients' homes to relieve symptomatic crisis (Wowchuk et al., 2009). Multi-symptom medication management is critical during the end of life transition. Morphine relieves symptoms including pain and dyspnea. Chau, Walker, Pai, and Cho (2008) identified the challenge due to alterations in opiate pharmacokinetics that occur with physiologic aging. However, it does not address all the unexpected symptoms that occur with hospice patients during their final days. According to Bishop and colleagues (2009) noisy secretions and fever were additional symptoms identified; medications used were an anticholinergic for secretions, such as atropine or hyoscyamine, and acetaminophen for patient's fever. Atropine, glycopyrrolate,

scopolamine, and scopolamine derivatives improved patient outcomes when utilized to provide relief for symptomatic crises caused by noisy secretions (Kintzel et al., 2009). Anxiety has been identified as a problematic symptom frequently experienced during the end-of-life transition and has been associated with decreased quality of life in hospice patients. Part of multi-symptom management includes managing anxiety with benzodiazepines. The data from this study identified the most common utilized benzodiazepine to address anxiety was the pharmaceutical oral Ativan.

5.2 Recommendations for Policy

CMS requirements for hospice organizations are continuously expanding and the hospice organizations are being required to report on performance measure scores. It is essential that hospice organizations have comfort care kits in place to improve quality of care and patient outcomes. Hospice organizations need to strategically plan to avoid any decrease in Medicare reimbursement payments. Hospice organizations must stay up-to-date on evidenced-based research to continuously improve the delivery of healthcare provided to their patient population and enhance performance measures scores.

In 2017, all hospice organizations throughout the United States are federally mandated to hire a third-party organization to administer surveys to the family members and caregivers of hospice patients after discharge. The surveys are federally mandated beginning in 2017 and focus on the delivery of care and the overall hospice organization's performance. According to the NHPCO (2014), the CAHPS, a post-death family caregiver survey developed by CMS for the assessment of patient and family experiences with hospice care includes the following topics: hospice team communication; getting timely care; treating family members with respect; providing

emotional support; getting help for symptoms; getting hospice care training; providing support for religious and spiritual beliefs; information continuity; and understanding the side effects of pain medication.

Today's healthcare system holds hospice organizations more accountable for their delivery of care utilizing performance measurements including symptom management. The performance results impact hospice organizations not only financially, but also through a marketing aspect potentially affecting hospice patient referral rates for other healthcare providers. These patient satisfaction rankings will be made accessible to the public, holding healthcare organizations even more accountable for improved patient outcomes.

Improved scores on performance measurements allot hospice organizations the ability to avoid financial deficit in Medicare reimbursement dollars. Reinforcing the implementation of comfort care kits on admission could alleviate poor score measures specifically on the symptom management performance rankings. These public rankings can sustainably affect hospice organizations marketing strategies and overall professional reputations.

5.3 Recommendations for Education

In order to maintain comfort for the patient during the end-of-life transition, research shows that it is critical for hospice clinicians to continuously educate the patient and caregivers regarding the prognosis and therapeutic interventions. Moreover, hospice clinicians must be educated on the full scope of multi-symptom management and integrate multi-symptom management into the care of the patient and family.

Hospice staff must provide education regarding how patients can lose their ability to swallow during imminent death and how proper delivery of medication has a serious impact on the patient's overall symptom management during the end-of-life transition. It is essential that hospice organizations continuously educate their providers, family members, and caregivers on the utilization or initial steps when accessing medications from a comfort care kit. This systematic procedure can be reinforced with educational handouts, assistance with caregiver's first medication administration from kit, and continuous verbal education at each patient encounter.

Finally, hospice clinicians must receive adequate education and training on critical aspects of assessments of hospice patients, especially as hospice patients' transition to end of life. Clinicians must be able to recognize signs and symptoms of imminent death in order to prepare both the patient and their loved ones. Since hospice patients have a prognosis of six months or less to live, imminent death or decline can occur at any moment. Caregivers and clinicians must anticipate the full scope of medication requirements to manage multi-symptoms that commonly occur during the end-of-life transition phase.

5.4 Recommendations for Research

Additional recommendations for further research in hospice includes the following: individualized comfort care kits, strategic processes to improve patient satisfaction measurements, and further analysis of the access to comfort care kits to rural hospice patients. Further research is needed to illustrate that comfort care kits should be individualized based on the patient's end-of-life diagnosis. Some cancer patients require an analgesic in combination with steroid therapy to decrease metastatic bone pain.

Evidence indicated that in cognitively impaired end-of-life patients, haloperidol is the most effective medication for treating agitation in patients. Additional research is needed to implement diagnosis-specific comfort care kits individualized to the patient's prognosis.

Increasing patient involvement in research to improve the quality of care during the end-of-life transition will help to fill additional gaps of knowledge. This is a vulnerable population to obtain data from due to their prognosis of death. However, it is essential to promote quality improvement interventions without subjecting hospice patients to cumbersome questions or creating an uncomfortable environment for them. An approach to allow hospice the opportunity to complete a survey or provide input when cognitively able and on a complete volunteer basis. A significant area of further research is the availability of medications, response rate of hospice organizations, and overall cost accrued delivering care to rural patients experiencing discomfort during the end-of-life transition.

Future research in the hospice healthcare delivery system should focus on avoidable end-of-life side effects caused by all medications, specifically focusing on opioids in the elderly population during the end-of-life transition. Opioids can cause distressful side effects in alert hospice patients taking their right to a dignified death. Patients verbally express their concerns of being in sound mind if able during their last days of life. In the geriatric population morphine and other opioids can cause distressful symptoms. According to Chau et al. (2008), the significance for healthcare providers prescribing opiates in the geriatric population is to utilize special considerations and minimize side effects. Hospice practice should identify the healthcare providers' choice

of prescribing medication, potential side effects, and the comfort in use of opiates to treat patient symptoms (Zerzan et al., 2010).

5.5 Limitations

The quality improvement project underscores the need for multi-symptom management, which is consistent with the evidence based literature. The data obtained were from healthcare providers at the frontline of this end-of-life care specialty both rural and urban areas.

In terms of limitations, the sample size was relatively small (n = 23 pre and n = 23 post survey) and all healthcare participants practice in the southern state of South Carolina. There was a high response rate considering thirty participants were administered both pre-test and post-test with only twenty-three response rate with the pre-test survey and twenty-three response rate with the post-test survey. The length of time for the project was a significant limitation to this study, allotting the participants only one month for participants to respond to the surveys. Finally, responses were not paired. So it is possible a participant responded to the pre-survey but not the post-survey.

5.6 Conclusion

Ordering comfort care kits on admission is a quality improvement intervention for hospice patients, especially during an unanticipated symptomatic crisis. Comfort care kits are a conglomerate of essential medications located within a sealed pharmacy bag or container. These medications are utilized to alleviate distressful symptoms that commonly occur during the final phases of the dying process. A licensed physician must write a hard copy prescription for the Comfort Care Kit because various medications are controlled substances. Once the kit is delivered to the patient's residence, it remains

sequestered in the patient's refrigerator until symptoms arise.

Patients diagnosed with life-limiting conditions deserve the best delivery of comprehensive comfort care. Evaluation of evidenced-based practice can identify best practice measures to improve symptoms in this population. Implementation of comfort care kits into hospice patients' homes can reduce suffering by both patients and their caregivers during unmanageable symptom crisis. Oral morphine is a beneficial medication to address symptoms of both pain and dyspnea in hospice patients. The anticholinergic medications deliver an improved patient outcome by alleviating increased secretions and nausea in patients during end-of-life care. Continuous caregiver education is imperative to understanding the symptoms and therapeutic interventions that can provide relief to hospice patients. Lastly, comfort care kits are a cost-effective approach to symptomatic complications that occur in the hospice population during the end-of-life transition. Identifying and appraising quality evidence from current research is important to change current clinical practice guidelines that lead to improved patient outcomes.

References

Anderson, A. & Chojnacka, I. (2012). Benefits of using the liverpool care pathway in end of life care. *Nursing Standard 26(34)*, 42-49.

Bishop, M. F., Stephens, L., Goodrich, M., & Byock, I. (2009). Medication kits for managing symptomatic emergencies. *Journal of Palliative Medicine, 12*(1), 37-43. doi: 10.1089/jmp.2008.0193

Boone, H. N., & Boone, D. A. (2012). *Analyzing Likert data* (2) [Abstract]. Retrieved from Journal of Extension. Retrieved from http://www.joe.org/joe/2012april/tt2.php

Brown, M. & Vaughan, C. (2013). Care at the end of life: how policy and law support practice. *British Journal of Nursing, 22*(10), 580-583. Doi:10.12968/bjon.2013.22.10.580

Burns, N., & Grove, S. K. (2009). The practice of nursing research. St. Louis, MS: Saunders Elsevier.

Centers for Medicare & Medicaid Services. (2013, August). *User guide for hospice quality reporting data collection* [CMS]. Retrieved from http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Hospice-Quality-Reporting/Downloads/UserGuideforDataCollection-.pdf

Centers for Medicare & Medicaid Services. (2013). Medicare hospice benefits. Retrieved from http://www.medicare.gov/publications/Pubs/pdf/02154.pdf

Centers for Medicare & Medicaid Services. (2015). Hospice Item Set (HIS). Retrieved from https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Hospice-Quality-Reporting/Hospice-Item-Set-HIS.html

Chau, D.L., Walker, V., Pai, L., & Cho, L.M. (2008). Opiates and elderly: Use and side effects. *Clinical Interventions in Aging, 3(2).* 273-278.

Conill, C.C., Verger, E., Henriquez, I., Saiz, N., Espier, M., Lugo, F., & Garrigos, A. (1997) Symptom prevalence in the last week of life. *Journal of Pain and Symptom Management, 14(6)*. 328-331.

Crang, C., & Muncey, T. (2008). Quality of life in palliative care: Being at ease in the here and now. *International Journal of Palliative Nursing, 14*(2), 92-97.

Curtis, J.R., Patrick, D.L., Engelberg, R.A., Norris, K., Asp, C., & Byock, I. (2002). A measure of the quality of dying and death. Initial validation using after-death interviews with family members. *Journal of Pain and Symptom Management, 24(1)*. 17-31.

Fleming, D.A., Sheppard, V.B., Mangan, P.A., Taylor, K.L., Tallarico, M., Adams, I., & Ingham, J. (2006). Caregiving at the end of life: Perceptions of health care quality and quality of life among patients and caregivers. *Journal of Pain and Symptom Management, 31(5)*. 407-420.

Frechen, S., Zoeller, A., Ruberg, K., Voltz, R., & Gaertner, J. (2012). Drug interactions in dying patients: a retrospective analysis of hospice inpatients in Germany. Drug Safety 35(9). 745-58. doi: 10.2165/11631280-000000000-00000

Hatley, T. and Patterson, P.D. (2007) Management and financing of emergency medical services. *North Carolina Medical Journal, 68(4).* 259-261.

Henoch, I., Bergman, B., Gustafson, M., Gaston-Johansson, F., & Danielson, E. (2007). The impact of symptoms, coping capacity, and social support on quality of life experience over time in patients with lung cancer. *Journal of Pain and Symptom Management, 34(4).* 370-379.

Johnson, D.C., Kassner, C.T., Houser, J., & Kutner, J.S. (2005). Barriers to effective symptom management in hospice. *Journal of Pain and Symptom Management, 29(1).* 69-79. doi: 10.1016/j.jpainsymman.2004.09.001.

Kehl, K.A. & Kowalkowski, J.A. (2012). A systematic review of the prevalence of signs of impending death and symptoms in the last 2 weeks of life. *American Journal of Hospice and Palliative Care, 6.* 601-616. doi: 10.1177/1049909112468222.

Kinley, J., Stone, L., & Hockley, J. (2013). St christopher's hospice guidelines: anticipatory end-of-life medication for the symptoms of terminal restlessness, pain and excessive secretions in frail older people in care homes. *End of Life Journal, 3.* 1-6. doi:10.1136/eoljnl-03-03.5

Kintzel, P. E., Chase, S. L., Thomas, W., Vancamp, D. M., & Clements, E.A. (2009). Anticholinergic medications for managing noisy respirations in adult hospice

patients. *American Journal Health-System Pharmacy, 66,* 458-464. doi: 10.2146/ajhp080194

Klinkenberg, M., Willems, D.L., Van der Wal, G., & Deeg, D.J. (2004). Symptom burden in the last week of life. *Journal of Pain and Symptom Management, 27(1).* 5-13. doi: 10.1016/j.jpainsymman.2003.05.008

Kutner, J.S., Bryant, L.L., Beaty, B.L., & Fairclough, D.L. (2007). Time course and characteristics of symptom distress and quality of life at the end of life. *Journal of Pain and Symptom Management, 34(3).* 227-236. doi: 10.1016/j.jpainsymman.2006.11.016

Kutner, J.S., Kassner, C.T., & Nowels, D.E., (2001). Symptom burden at the end of life: hospice providers' perceptions. *Journal of Pain and Symptom Management, 21 (6).* 473-480.

Lau, D. T., Kasper, J. D., Hauser, J. M., Berdes, C., Chang, C., Berman, R. L. Masin-Peters, J., Paice, J. & Emanuel, L. (2009). Family caregiver skills in medication management for hospice patients: A qualitative study to define a construct. *Journal of Gerontology: Social Sciences, 64B* (6), 799-807. doi: 10.1093/geronb/gbp033

Maltoni, M., Miccinesi, G., Morino, P., Scarpi, E., Bulli, F., Martini, F., Canzani, F., Dall'Agata, M., Paci, E., & Amadori, E. (2012). Prospective observational Italian study on palliative sedation in two hospice settings: Difference in case mixes and clinical care. *Support Care Cancer, 20,* 2829-2836. doi: 10.1007/s00520-012-1407-x

Melnyk, B.M. & Fineout-Overholt, E. (2011). Evidence-based practice in nursing and healthcare (2nd ed.). Philadelphia, PA: Wolters Kluwer and Lippincott Williams & Wilkins.

Mercadante, S., Villari, P., & Casuccio, A. (2010). An Italian survey on the attitudes in treating breakthrough cancer pain in hospice. *Support Care Cancer, 19*, 979-983 doi: 10.1007/s00520-010-0919-5

Michigan Quality Improvement Consortium. (2008c). Definitions: levels of evidence for the most significant recommendations. Southfield (MI): 1.

Morrow, A. (2014). Why do patients need the medications in a hospice comfort kit? Retrieved fromhttp://dying.about.com/od/symptommanagement/f/hospice_kit.htm

National Hospice and Palliative Care Organization. (2013). *Hospice care: What is hospice?* Retrieved from http://www.nhpco.org/about/hospice-care

National Hospice and Palliative Care Organization. (2013). *NHPCO's facts and figures in America*. Retrieved from Http://www.nhpco.org/sites/default/files/public/Statistics_Research/2013_Facts_Figures.pdf

National Hospice and Palliative Care Organization. (2010). *Preamble and philosophy: NHPCO standards of practice*. Retrieved from http://www.nhpco.org/ethical-and-positionstatements/preamble-and-philosophy

National Hospice and Palliative Care Organization. (2015). *Regulatory Alerts: FY2015 Hospice Wage Index Proposed Rule*. Retrieved from http://www.nhpco.org/sites/default/files/public/regulatory/FY2015_Wage_IndexR

egulatoryAlert.pdf

Papadakis, M. A., & McPhee, S. J. (2013). 2013 Current Medical Diagnosis & Treatment. New York: McGraw-Hill.

Rose, M., & Currow, D. C. (2009). The need for chemical compatibility studies of subcutaneous medication combinations used in palliative care. *Journal of Pain & Palliative Care Pharmacotherapy, 23*(3), 223-229. doi: 10.1080/15360280903098382

Rurup, M.L., Borgsteede, S.D., van der Heide, A., van der Maas, P.J., & Onwuteaka-Philipsen, B.D. (2009). Trends in the use of opioids at the end of life and the expected effects on hastening death. *Journal of Palliative Medicine, 37*(2). 144-155. doi: 10.1016/j.jpainsymman.2008.02.010

Schenck, A. P., Rokoske, F. S., Durham, D. D., Cagle, J. G., & Hanson, L. C. (2010). The PEACE project: Identification of quality measures for hospice and palliative care. *Journal of Palliative Medicine, 13*(12).

Sera, L., McPherson, M. L., & Holmes, H. M. (2014). Commonly prescribed medications in a population of hospice patients. *American Journal of Hospice and Palliative Medicine, 31*(2), 126-131. doi: 10.1177/1049909113476132

SIGN. (2013a). SIGN grading system: 1999-2012. Retrieved from http://www.sign.ac.uk/guidelines/fulltext/50/annexoldb.html

SIGN. (2013b). Critical appraisal: Notes and checklists. Retrieved from http://www.sign.ac.uk/methodology/checklists.html

Steindal, S.A., Bredal, I.S., Sorbye, L.W., & Lerdal, A. (2011). Pain control at the end of life: a comparative study of hospitalized cancer and noncancer patients. *Scandinavian Journal of Caring Sciences, 25(4).*771-779.

Tranmer, J. E., Heyland, D., Dudgeon, D., Groll, D., Squires-Graham, M., & Coulson, K. (2003). Measuring the symptom experience of seriously ill cancer and noncancer hospitalized patients near the end of life with the memorial symptom assessment scale. *Journal of Pain and Symptom Management, 25(5),* 420-429. doi:10.1016/S0885-3924(03)00074-5

Wowchuk, S. M., Wilson, A., Embleton, L., Garcia, M., Harlos, M., & Chochinov, H. M. (2009). The palliative medication kit: An effective way of extending care in the home for patients nearing death. *Journal of Palliative Medicine, 12*(9), 797-803. doi: 10.1089/jmp.2009.0048

U.S.A. Department of Health & Human Services. (2015). Advancing the health, safety, and well- being of the nation. Retrieved from http://www.hhs.gov/afr/fy-2015-hhs-agency-financial-report.pdf

Zerzan, J., Benton, K., Linnebur, S., O'Bryant, C., & Kutner, J. (2010). Variation in pain medication use in end-of-life. *Journal of Palliative Medicine, 13*(5), 501-504. doi: 10.1089/jmp.2009.040

Appendix A

Scottish Intercollegiate Guidelines Network (SIGN) Grading System 1999–2012

Levels of evidence	
1++	High quality meta-analyses, systematic reviews of RCTs, or RCTs with a very low risk of bias
1+	Well-conducted meta-analyses, systematic reviews, or RCTs with a low risk of bias
1-	Meta-analyses, systematic reviews, or RCTs with a high risk of bias
2++	High quality systematic reviews of case control or cohort or studies High quality case control or cohort studies with a very low risk of confounding or bias and a high probability that the relationship is causal
2+	Well-conducted case control or cohort studies with a low risk of confounding or bias and a moderate probability that the relationship is causal
2-	Case control or cohort studies with a high risk of confounding or bias and a significant risk that the relationship is not causal
3	Non-analytic studies, e.g. case reports, case series
4	Expert opinion

(SIGN, 2013)

Appendix B

Michigan Quality Improvement Consortium (2008)

Definitions: Levels of Evidence for the Most Significant Recommendations

A. Randomized Controlled Trials

B. Controlled Trials, Non-Randomized (Case Study and Cohort Study)

C. Observational Studies (Descriptive Studies)

D. Expert Panel

(Michigan Quality Improvement Consortium, 2008)

Appendix C

Symptom Management Model

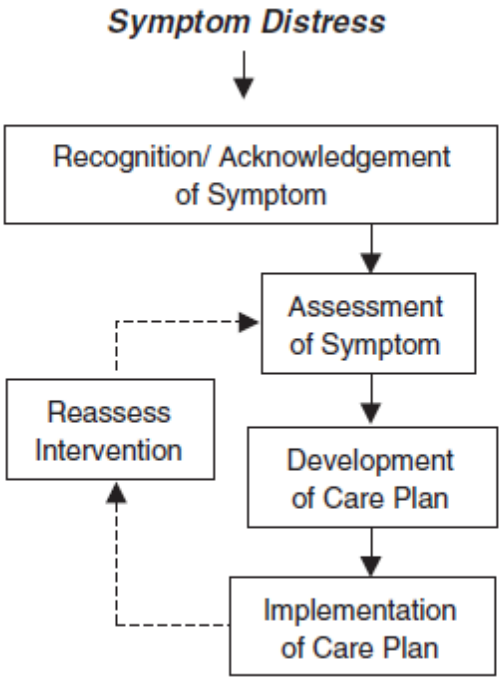

Fig. 1. Symptom management model.

Image Retrieved from Johnson et al. (2005)

Appendix D

Comfort Care Kit Handout

Common End of Life Signs and Symptoms

Common multi-symptoms among hospice patients are pain, dyspnea, nausea, delirium, and increased secretions. According to Morrow (2014) anxiety and insomnia are additional distressful symptoms experienced by patients during the end of life transition.

Comfort Care Kit

Definition

A Comfort Care Kit is a conglomerate of essential medications located within a sealed pharmacy bag or container. According to Morrow (2014) the hospice comfort kit is also referred to as the emergency kit contains a prescribed set of medications to assist the hospice team in treating distressful symptoms as soon as possible. These medications are utilized to alleviate distressful symptoms that commonly occur during the final phases of the dying process. A licensed physician must write a hard copy prescription for the Comfort Care Kit, various medications are controlled substances. Once the Kit is delivered to the patient's residence it remains sequestered in the patient's refrigerator until symptoms arise.

Comfort Care Kits Contents

Morphine used to address pain, shortness of breath, and dyspnea.

Haloperidol, Lorazepam, or other Benzodiazepine used to alleviate anxiety or restlessness, and insomnia (Morrow, 2014).

Metoclopramide to treat nausea or increased gastric secretions.

Scopolamine used to treat nausea or increased secretions.

Phenergan used to treat nausea or vomiting.

Atropine used to treat increased respiratory secretions, also known as the death rattle (Morrow, 2014).

Acetaminophen or Ibuprofen used to alleviate terminal fever or pain.

Dulcolax suppositories (Bisacodyl) is a rectal suppositories utilized to treat constipation.

Appendix E

Pre-Test and Post-Test Survey

Table E.1.
Multiple Choice Questions

1.1 During your experience with managing symptoms during the patient's last two weeks of life, which symptom do you believe was the most prominent symptom?	Anxiety/ Restlessness	Dyspnea/ SOB	Increased Respiratory Secretions	Pain	Other
1.2 During your experience with managing symptoms during the patient's last two weeks of life which do you believe was the most distressful symptom for patients?	Anxiety/ Restlessness	Dyspnea/ SOB	Increased Respiratory Secretions	Pain	Other

1.3 During your experience with managing symptoms during the patient's last two weeks of life which do you believe was the most distressful symptom for patients' Families and/or Caregivers?	Anxiety/ Restlessness	Dyspnea/ SOB	Increased Respiratory Secretions	Pain	Other
1.4 During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve anxiety (if indicated)?	Yes	No			
1.5 If yes which one?	Oral Ativan (Lorazepam)	Oral Valium (Diazepam)	Oral Xanax (Alprazolam)	Topical Benzodiazepine	Other
1.6 During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve Dyspnea/Shortness of Breath (if indicated)?	Yes	No			
1.7 If yes which one?	Bronchodilators	Corticosteroid	Hydro-Morphine	Morphine	Other

1.8 During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve Increased Respiratory Secretions (if indicated)?	Yes	No			
1.9 If yes which one?	Atropine	Glycopyrrolate	Scopolamine transdermal Patch/Gel	Oral Scopolamine	Other
1.10 During your experience with managing symptoms during the patient's last two weeks of life, did you use a medication to relieve Pain (if indicated)?	Yes	No			
1.11 If yes which one?	Acetaminophen/ other OTC Analgesic	Fentanyl	Hydro-Morphine	Morphine	Other
1.12 During your experience with managing symptoms during the patient's last two weeks of life, which medication was predominantly used the most to improve	Atropine	Benzodiazepine	Scopolamine	Morphine	Other

patient's level of comfort or outcome due to distressful symptom?					

Boone & Boone (2012)

Appendix F

Evidence Table

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
Bishop, M.F., Stephens, L., Goodrich, M. & Byock, I. Medication kits for managing symptomatic emergencies in the home: a survey of common hospice practice JOURNAL OF PALLIATIVE MEDICINE Volume 12, Number 1, 2009 The study identified a decreased amount of research available that focused on hospice programs' utilizing medication kits (comfort kits). Comfort care kits are used for the purpose of managing hospice patients' uncontrolled symptoms at home until a nurse from the agency	Retrospective Survey Research Rating- 3	They conducted a telephone survey of all 22 agencies in New Hampshire providing home hospice care. Most respondents surveyed inquired about the timing of medication kit ordering and availability, characteristics of prescribers, pharmacies, kit contents, costs, frequency of use, and perceived impact of kits. The survey was administered by phone interview.	Geographical bias due to the survey being conducted in a single state, New Hampshire. Sampling bias due to the small sample population utilized and selection of participants were not randomized. Reporting Bias due to the tool	All programs' kits contained medications to treat pain and dyspnea, 81% for nausea and vomiting, and 76% for seizures. Eighty-six percent of agencies (18/21) reported that a medication within the kits was used in more than 50% of cases. Eighty-six percent reported the kits often averted hospital or emergency department	Crisis symptomatic management of hospice and palliative care patients is the essential purpose of these establishments. Hospice programs are established to provide quality care and comfort to their patients, allowing them a dignified dying experience. Hospice programs commonly utilize kits containing prescription medications for the purpose of managing uncontrolled symptoms in the

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
arrives at the patients' home environment.		Descriptive statistics measurements were produced utilizing the program Stata.	utilized to facilitate response was a survey and was a general impression of a single representative within in hospice agency that responded. The survey was brief and did not ask about doses of prescribed medications or the quantities of medications dispensed.	visits. Oral, sublingual, and rectal routes of administration were common as was topical preparations of combination medications. Three programs included parenteral morphine in kits. Kits cost less than $50 for the majority of programs.	home. There is considerable variation in kit contents and practice. Programs believe that kits diminish emergency department visits and hospitalizations. Research is needed to more fully describe and study the outcomes of these practices.
Currow, D.C., Vella-Brincat, J., Fazekas, B., Clark, K., Doogue, M., & Rowett, D.	Consecutive cohort study	A consecutive cohort of patients from 12	Reporting bias due to the study	Of the 53 people included in the cohort, 23 (43%)	Overall, one in three people gained net clinical benefit at one

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
Pharmacovigilance in Hospice/Palliative Care: Rapid Report of Net Clinical Effect of Metoclopramide JOURNAL OF PALLIATIVE MEDICINE Volume 15, Number 10, 2012 The aim of this study was to describe the clinical effect of metoclopramide when prescribed routinely in a consecutive, prospective cohort of hospice/palliative care patients.	Rating- 2+	participating centers in two countries who were having metoclopramide initiated had data collected at three time points—baseline, 2 days (clinical benefit), and day 7 (clinical harm). The National Cancer Institute's Common Toxicity Criteria for Adverse Events (NCI CTC) Likert scales for grading harms were utilized	only addresses immediate and short term harms. Another form of reporting bias was the modified Naranjo score including only five of the questions of relevance to practice was collected as an aggregate number .The study has sample bias due to its relatively small sample size.	reported benefit at 48 hours, but only 18 (34%) of these people were still using it one week after commencing it. For the other 5, the medication was ceased due to harms. The most frequent harms were akathisia (n = 4), headache (n = 4), and abdominal pain (n = 4). Nine people (17%) had no clinical benefit and experienced harms.	week. Limiting effects include side effects that needs to be sought actively in clinical care.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
Currow, D.C., Rowett, D., Doogue, M., To, T.H., & Abernethy, A.P. An international initiative to create a collaborative for pharmacovigilance in hospice and palliative care clinical practice JOURNAL OF PALLIATIVE MEDICINE Volume 15, Number 3, 2012 There is a need for prospective, systematic pharmacovigilance in hospice and palliative care.	Project description, expert opinion Rating- 4	An international, Web-based, 128-bit secure initiative to collect pharmacovigilance data documenting net clinical benefit and safety of common medications. The intention is for a diverse and large group of clinical units to record data prospectively on a small identified consecutive cohort of patients started on the medication of interest. A new medication would be studied every 3 months. Three key time points (different for each medication) will be assessed for	N/A	N/A (In hospice and palliative care, longitudinal pharmacovigilance data have not been systematically collected.	The intention is to create an efficient, relevant system to improve hospice and palliative care with maximally generalizable results. The pharmacovigilance project will include a simple registry format, medications management, and set points. Understanding the effectiveness of medications in everyday practice requires additional longer term, real-world, longitudinal data to complement short-term efficacy data generated for registration.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
		each patient, collecting easily codefiable data at baseline, a point at which clinical benefit should be experienced, and a point at which short- to medium-term toxicities may occur. Toxicities can additionally be recorded at any time they occur. Data collection will take a maximum of 10 minutes per patient. Of the nine criteria proposed by Naranjo and colleagues to attribute causality to a medication for an			

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
		adverse event, five will be used in the clinical assessment to aid in understanding likely attribution of a relationship between the medication and the observed side effect (Table 1). Those that will be omitted are not realistic for routine use in end-of-life care.			
Kintzel, P.E., Chase, S.L., Thomas, W., Vancamp, D.M., & Clements, E.A. Anticholinergic medications for managing noisy respirations in adult hospice patients Am J Health-Syst Pharm—Vol 66 Mar 1, 2009	Literature Review Rating- 4	Literature Review performed using medical literature using MEDLINE (January 1987–December 2006) to identify clinical studies and reports pertaining to pharmacologic	Reporting bias due to noise score being assessed from nurse's perception.	Two studies concluded that there was equivalent efficacy between the two products. One study reported a more rapid response in patients treated	Parenteral and transdermal anticholinergic medications are useful for the reduction of noisy respirations in hospitalized hospice patients. Difficult administration makes oral and sublingual

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
The purpose of this study was to identify anticholinergic medications for reducing noisy respirations in adult hospice patients are evaluated.		management of retained and excess secretions. Pharmaceutical anticholinergic treatment of retained secretions in hospice patients was evaluated in six studies, three of which compared the efficacy of glycopyrrolate to scopolamine in actively dying patients. Subcutaneous glycopyrrolate, scopolamine hydrobromide, and scopolamine butylbromide were similar in their ability to		with glycopyrrolate. In comparison, the last study reported more rapid responses in patients who received scopolamine compared with patients who received glycopyrrolate. Retrospective reports described symptom improvement with parenteral scopolamine in most patients.	products less desirable for use in this population.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
		reduce noisy respirations overall and lower and the level of distress exhibited by family members and visitors. Two of the six studies compared the efficacy of medication therapy after institutional formulary changes from scopolamine to glycopyrrolate. The same dosages of subcutaneous glycopyrrolate and scopolamine, which delivered an initial bolus followed by continuous infusion, were reported in			

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
		each study.			
Maltoni, M., Miccinesi, G., Morino, P., Scarpi, E., Bulli, F., Martini, F., Canzani, F., Dall'Agata, M., Paci, E., & Amadori, D. Prospective observational Italian study on palliative sedation in two hospice settings: differences in case mixes and clinical care Support Care Cancer (2012) 20:2829–2836 The purpose of this study identified Palliative sedation (PS) has been defined as the use of sedative medications to relieve intolerable suffering from refractory symptoms by a reduction in patient consciousness. It is sometimes necessary in end-of-life care when patients	Prospective, Cohort Study Rating- 2+	This observational longitudinal cohort study was conducted over a period of 9 months on 327 patients consecutively admitted to two 11-bed Italian hospices (A and B) with different case mixes in terms of median patient age (hospice A, 66 years vs. hospice B, 73 years; P00.005), mean duration of hospice stay (hospice A, 13.5 days vs. hospice B, 18.3 days; P00.005), and death rate (hospice	Reporting bias due to differences in the proportion of existential distress and delirium in the 2 hospices can be attributed to a different interpretation by clinicians of the symptoms (p. 2832). Geographical bias due to study participants from Italy.	Patient involvement in clinical decision-making about sedation was significantly higher in hospice B (59.3% vs. 24.4%; P00.007). Family involvement was 100% in both hospices. The maximum level of sedation (RASS, -5) was necessary in only 58.3% of sedated patients. Average duration of sedation was similar in the two hospices (32.2 h [range, 2.5–253.0]). Overall survival in	PS represents a highly reproducible clinical intervention with its own indications, assessment methodologies, procedures and results. It does not have a detrimental effect on survival.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
present refractory symptoms. We investigated PS for refractory symptoms in different hospice case mixes in order to (1) assess clinical decision-making, (2) monitor the practice of PS, and (3) examine the impact of PS on survival.		A, 57.2% vs. hospice B, 89.9%; P<0.0001). PS was monitored using the Richmond Agitation–Sedation Scale (RASS). Sedated patients constituted 22% of the total admissions and 31.9% of deceased patients, which did not prove to be significantly different in the two hospices after adjustment for case mix.		sedated and nonsedated patients was superimposable, with a trend in favor of sedated patients.	
Mercadante, S., Villari, P., & Casuccio, A. An Italian survey on the attitudes in treating breakthrough cancer pain in hospice	Survey Research Rating- 3	Data were collected and analyzed by SPSS Software. Results were identified through statistical analysis of	Geographical bias due to study participants from Italy.	Of the 158 hospices registered, 122 centers agreed with the interview (77.2%).	These findings suggest the need for improved education on behalf of physicians on the assessment and treatment of

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
Support Care Cancer (2011) 19:979–983 DOI 10.1007/s00520-010-0919-5 The aim of this study was to assess the knowledge and attitudes of hospice physicians in Italy regarding BcP and its treatment.		quantitative data, descriptive statistics, and the Chi-square test. All hospices existing in Italy were interviewed to gather information about provision of BP medication, drugs of choice, preferred route of administration, methods to choose the dose, and choice of BcP medication based on opioid administered for background analgesia.		Morphine was more frequently used, either orally or parenterally. In some hospices, oral transmucosal fentanyl (OTFC) was unavailable. Most physicians provided doses of opioids proportional to the opioid basal regimen, independently of the preferred opioid or the route of administration. The choice of dose titration was equally used in patients who were prescribed OTFC or parenteral	BcP, particularly in a potentially specialized setting, such as palliative care units. The choice of BcP medications should be based on the best cost-efficacy ratio rather than solely on economic considerations.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
				morphine. The choice of breakthrough medication on the basis of opioid basal regimen was equally distributed.	
Rose, M. & Currow, D.C. The need for chemical compatibility Studies of subcutaneous medication combinations used in palliative care Journal of Pain & Palliative Care Pharmacotherapy, Vol. 23(3), 2009 doi:10.1080/15360280903098382 The purpose of this study was to optimize symptom control in those patients who can take medications orally and in those patients unable to swallow;	Literature Review Rating- 4	Literature review	N/A	The results highlight how poorly supported palliative clinical care delivery is by quality laboratory data to underpin best practice (p. 228). Given the widespread use of injectable combinations in hospice and palliative care, there is an urgency to define best practice	There is an urgent need to attract funding so that a systematic body of work can commence that reflects the use of combinations of injectable medications in hospice and palliative care practice on a daily basis. This may help to explain lack of response to therapeutic combinations or unexplained adverse reactions.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
therefore, requiring an alternative route of administration. If transdermals, intranasal, nebulized, rectal, or sublingual route of medication administration are not valid routes, the subcutaneous administration of medication can be utilized.				through systematic and rigorous exploration of (nonvisible) chemical compatibilities in ways that reflect real world practice—wide temperature ranges, and different periods of time between drawing up any combinations and administering them.	
Sera, L., McPherson, M. L., & Holmes, H. M. (2014). Commonly prescribed medications in a population of hospice patients. American Journal of Hospice and Palliative Medicine, 31(2), 126-131. doi:10.1177/1049909113476132	Retrospective Cross-sectional Study Rating- 2+	Data for this study were provided by Seasons Hospice & Palliative Care, a national hospice organization with locations in 11 states at the time of the study (currently in 15	Sample Bias only one national hospice organization . Reporting Bias identified by data regarding	The 100 most commonly prescribed drugs are listed in Table 3. The 6 most common drugs (acetaminophen, morphine, haloperidol,	This study of patients admitted for hospice care with any diagnosis revealed that medications used to treat common end-of-life symptoms such as pain, anxiety,

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
The purpose of this study was to determine the most commonly prescribed medications in a population of hospice patients.		states). The clinical database of patient demographic and medication information gathered from patient electronic medical records. Patients included in the study were admitted to hospice on or after January 1, 2010 and if they died in hospice on or before December 31, 2010.	medication use not available.	lorazepam, prochlorperazine, and atropine) were all included in the symptom management medication kits provided to most patients at admission. Other drugs prescribed for over 10% of the patients included albuterol, docusate, bisacodyl, scopolamine, senna, furosemide, aspirin, ipratropium, omeprazole, magnesium, oxycodone, fentanyl, metoprolol, and hydromorphone.	delirium, and nausea were most frequently prescribed.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
Wowchuk, S. M., Wilson, A., Embleton, L., Garcia, M., Harlos, M., & Chochinov, H. M. (2009). The palliative medication kit: An effective way of extending care in the home for patients nearing death. Journal of Palliative Medicine, 12(9), 797-803. doi: 10.1089/jmp.2009.0048 Palliative medication kits for home use were developed in order to extend the period of time terminally ill patients might be cared for in their homes.	Simple Descriptive Study Rating- 3	Data collection forms were designed to monitor medications administered from the PMKs, symptoms being addressed, and patient outcome. Nurses were asked to complete a data collection form each time they accessed the PMK and to submit completed forms to the palliative care program for data entry and analysis.	Sampling bias small sample size. Reporting Bias families and patients were not included.	From 2002–2007, a total of 293 kits were placed in patients' homes and used. Two hundred fifty-eight patients (88%) died at home, compared to 24% who died outside of an acute care setting across the entire program (w2¼579.71; p < 0.0001). In 2006–2007, 73 kits were placed but not used. Forty-four patients (60%) died at home, compared to a program home death rate of 27% (w2¼60.70; p < 0.0001).	Palliative medication kits are a simple and effective way of anticipating and addressing comfort and symptom control for dying patients being cared for in the community. These kits can avert institutional crisis admissions, extend the period of time patients can be cared for in their homes and may increase the likelihood of a home death.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
Zerzan, J., Benton, K., Linnebur, S., O'Bryant, C., & Kutner, J. Variation in pain medication use in end-of-life care JOURNAL OF PALLIATIVE MEDICINE Volume 13, Number 5, 2010 DOI: 10.1089=jpm.2009.0406 The aim of this study sought to explore variation in approaches to pharmaceutical management of pain among hospice-eligible patients and to determine if variation was explained by patient or site of care characteristics. Variation in medication use may suggest areas for best practices or quality improvement in medication use in end-of-life care.	Rating- 2+	They conducted a secondary analysis of randomized trial data, examining use of five medication classes: opiates, nonsteroidal anti-inflammatory drugs (NSAIDs), adjuvant pain medications (tricyclics and anti-seizure), stimulants and antianxiety medications in 16 study sites nationwide. Descriptive statistics were generated for patient-level data and by site.	Sampling bias patients enrolled in this study may not represent all patients. Reporting bias medications were self-reported.	Found variation in medication use was not predicted by most patient characteristics or location of care (home versus facility). Use of all types of pain medications decreased with age (odds ratio [OR] 0.75 [0.63–0.90]). Medication use varied between sites: a range of 14%–83% of patients were on different types of opiates, 0%–40% on NSAIDS, 20%–69% on	Pain and adjuvant medication use differs widely by site of care. Further research is needed to determine the extent to which provider and patient choice contribute to prescribing variation, and to explore associations between patient symptoms, medication variation, and patient care quality.

Brief Reference	Type of study/ Quality rating	Methods	Threats to validity/ reliability	Findings	Conclusions
		Unadjusted and adjusted odds ratios were calculated to compare patient and location of care characteristics with each medication class use by site.		benzodiazepines, 0%–25% on adjuvant medications, and 0%–23% were on acetaminophen at any time during the data collection period.	