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End-of-life Education and Preparedness of Physician Assistants in Minnesota and the Surrounding States

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END-OF-LIFE EDUCATION AND PREPAREDNESS OF PHYSICIAN ASSISTANTS IN MINNESOTA AND THE SURROUNDING STATES

A MASTER'S PROJECT
SUBMITTED TO THE GRADUATE FACULTY
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ABSTRACT

As the population in the United States ages, palliative care spending and needs have been increasing. Most quality outcome measures, however, have shown inadequate satisfaction among patients and caregivers. A number of studies have investigated the preparation and preparedness of physicians and other medical providers when dealing with end-of-life care, but few have looked in the preparedness of physician assistants (PAs).

The aim of this study was to assess the preparedness of PAs when it comes to dealing with end-of-life care and to determine when and how comfort is achieved when dealing with patients at end-of-life.

A novel electronic survey was sent to all member physician assistants of the Minnesota Academy of Physician Assistants (MAPA). Results of the survey were analyzed based on the twelve domains of provider skills deemed imperative for end-of-life care as identified by Curtis et al. (2001) and further broken down into novel constructs identified by the researchers.

Researchers received 120 survey results from MAPA PAs. Of the PAs that answered, “do you wish you had more end-of-life training before starting practice, and if so, in what format”, 84% requested more training before starting practice, in the forms of general training during didactic year, (38.3%) and secondly in case presentations/ clinical training (29.79%). PAs who specialized in oncology were the most comfortable with end-of-life conversation, whereas PAs in family practice and emergency medicine were the least comfortable. Continuing education units (CEUs) and workplace training were found

to be the most effective means of training, with current providers that have received didactic training showing no increased comfort levels in any construct.

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Chapter 1

Introduction

Introduction

The researchers looked at current health trends and spending towards end-of-life care, the current and past satisfaction of patients and caregivers regarding end-of-life care, and the amount and quality of training that providers receive to prepare them for end-of-life discussions. Since physicians and physician assistants (PAs) share a similar training model and due to the paucity of research on physician assistant education, the background of this study focuses on the preparedness of physicians to deal with end-of-life and palliative care. The researchers also examined the problems with current health care provider training in regards to end-of-life care. This chapter will define the purpose of this study, the significance, the limitations, definition of terms, and the research question being answered.

Background to the Problem

The U.S. aging population coincides with an increase in the number of deaths. In 2013, the U.S. Department of Health and Human Services reported that the number of individuals older than 65 in the United States totaled 44.7 million, making up 14.1% of the population; that percentage is expected to grow to 21.7% by 2040 ("Administration on Aging", 2013). In 2010, the number of deaths per year reached approximately 2.5 million in the U.S., a significant increase from 1935 when the rate was approximately 1.4 million deaths per year (Hoyert, 2012).

With this aging population there has been an increase in medical expenses. The U.S. spends approximately 10-12% of the health care budget and 27% of the Medicare budget on end-of-life care (Emanuel, 1996). Between 2002 and 2010, Medicare spending increased from $11,692 to $15,857 per capita for those between 65 and 84 years old, which is an increase of 36% (NHE Fact Sheet, 2015). In this same time period, life expectancy increased only 1.84 years, from 76.86 to 78.7 (Arias, 2008 & Arias, 2014). Therefore, while expenditures have grown significantly, life expectancy has not maintained a proportionate increase.

Life expectancy is not the only benchmark of end-of-life care. With increased spending one might expect to see increased quality measures or improved outcomes. A mixed method survey of patients detailed five common domains of what patients look for in their end-of-life care. These domains include adequate pain and symptom management, avoiding prolongation of the dying process, achieving a sense of control, unburdening loved ones, and strengthening relationships with those around you (Singer, 1999). Hales (2014), found an increase in Quality of Death and Dying (QODD) survey scores among patients who died at home and among caregivers with less “grief distress”. Comparing 2000, 2005, and 2009, the proportion of deaths in acute care hospitals decreased from 32.6% to 26.9% to 24.6%, respectively. However, intensive care unit (ICU) use in the last month of life increased from 24.3% to 26.3% to 29.2%, indicating an increased strain on the patient, caregivers, and health care system (Teno, 2013). Kai (1993) found that out of 201 patients with terminal diseases in Japan 70% preferred to die at home rather than in a hospital setting. However, their providing physicians were only able to correctly estimate the patient’s preferred place to die in less than half of the cases, showing that the physicians and their patients did not communicate effectively regarding the patient’s dying wishes (Kai, 1993).

Not only patients have expressed dissatisfaction with provider communication during end-of-life care but, caregivers themselves of terminal patients are also dissatisfied. Burns (2015) found 48.3% of caregivers experienced a “worse or much worse caregiving experience” than expected (p.455). The utilization of specialized palliative care services has been shown to significantly decrease “unmet needs” among caregivers (Abernethy, 2008). In a qualitative study of 461 family members of patients who passed away, 91% of the comments regarding hospice care were positive, but 44% of the respondents suggested that better communication by physicians in regards to terminal care would have helped the dying process (Hanson, 1997). Although the United States is spending more money on the aging population, most quality outcome measures have shown inadequate satisfaction among patients or caregivers.

To provide quality end-of-life care, healthcare providers must be trained effectively. Unfortunately, many physicians feel unprepared to deal with end-of-life issues. According to a survey completed by 590 medical students in the United Kingdom, “75% report[ed] no training in bereavement, 53% report[ed] no training in communication, 46% report[ed] no training in controlling other symptoms and 36% report[ed] no training in pain control, while 27% report[ed] no training in any area” related to end-of-life care (Barclay, 2003 p.30). In the United States, a national survey of 4th year medical students revealed that 40% of medical residents did not feel prepared to deal with end-of-life care. Of the responses received, 18% of students received no formal education on end-of-life care (Sullivan, 2003). Within Sullivan’s study, the various attitudes of medical students towards end-of-life care were also analyzed. This study found that 99% believed “physicians have a responsibility to help patients at the end-of-life prepare for death,” and that 90% felt “physicians have a responsibility to provide bereavement care to the patient’s family after death” (Sullivan, 2003, p.689). Barzansky (1999) surveyed 125 U.S. medical schools, finding only four that reported containing a curriculum which included a required separate course on death and dying. The majority of medical schools (97%) reported those topics being included in other courses (Barzansky, 1999). Although the majority of physicians believe it is their responsibility to the patient and their family to provide end-of-life care, there is a clear disconnect with the amount of formal education they receive while in medical school.

Notably, even those physicians who deal with end-of-life encounters frequently do not feel properly prepared to handle such situations. In the United States, a survey among oncology physicians showed that 58% lacked formal education in speaking with their patients regarding prognosis, but 96% of the survey responses described that prognosis training should be a part of their education (Daugherty, 2008). Similarly, Harris (2014) looked at neonatal-perinatal postdoctoral fellows, finding the majority of participants had been involved in at least one patient death and had been the sole provider to inform the family about that death. The majority of these physicians felt they did not receive adequate training to deal with end-of-life circumstances. Additionally, they also felt their supervisory physicians were not good role models when it came to end-of-life care (Harris, et. al, 2014).

Along with physicians, PAs also feel unprepared to provide end-of-life care. A study of 69 hospitalist PAs at John Hopkins Bayview Medical Center showed that 85% of PAs felt a need for further training in palliative care (Torok, Lackner, Landis, Wright, 2012). The study also showed a majority of the hospitalist PAs would take a pay cut during the first year of employment in order to further their knowledge in palliative care (Torok, Lackner, Landis, Wright, 2012). Similarly, a study of 669 PAs in Illinois revealed that 54% of PAs requested more training on hospice and palliative care (Berge, Prerost, Foltz, 2001). The Accreditation Review Commission on Education for the Physician Assistant made a point in the most recent edition of accrediting standards to include more training in palliative care and end-of-life care (Accreditation Standards for Physician Assistant Education, 2010). It is evident that similar to physicians, PAs do not feel adequately prepared or equipped to care for patients at the end of life.

Problem Statement

Despite the apparent awareness of the need for better end-of-life care, no one has studied how the formal medical education that is currently received relates to the preparedness of the PAs. It has been shown that providers believe end-of-life education is severely lacking, but it is unknown whether institutions acknowledge this issue or have made changes to address this shortfall. A lack of research exists in terms of physician assistants in regard to their preparedness in dealing with end-of-life care.

Purpose

The purpose of this study was to investigate PA education regarding end-of-life care. This study looked at the education and comfort level of PAs when it comes to providing care at the end-of-life.

As previously illustrated, end-of-life care is extremely expensive and the overall satisfaction levels of providers, patients and caregivers are less than ideal. Numerous possible reasons may explain the gap between resources allocated and results achieved. There is a gap in the literature when measuring the perceived education provided by an institution and the education received by its students. Therefore, researchers will aim to answer the question of how adequately PAs are prepared to deal with end-of-life care given the current curriculum and training experiences during graduate school.

Research Questions

The research questions addressed in this study are as stated below:

1. How comfortable are PAs at providing end-of-life care, according to the twelve domains as defined by Curtis et al., 2001?
2. To what degree do PAs feel they were prepared during their formal education at providing end-of-life care?
3. How well do PA program directors/education coordinators feel they prepare students to provide end-of-life care?

Significance of the Problem

With current trends, the population is aging while spending on end-of-life care is increasing. However, satisfaction among patients, caregivers, and healthcare providers does not correlate with the growing costs. Much of this problem can be attributed to the lack of formal training that providers receive regarding care of terminal patients. As programs potentially begin to address this lack of preparedness and expand their end-of-life programs, it is important to know if the education provided is leading to more prepared PAs.

Limitations of the Study

Despite the sensitive nature of the subject, many providers see end-of-life care as a significant issue in medicine. This study will be limited by the willingness of the educational institutions and the practitioners to provide honest responses about possible shortcomings in training and patient care. Graduate school program directors/education coordinators will be required to look at their programs with a critical eye, give an honest appraisal of their training methods, and identify possible shortcomings. This study is limited to providers and educational institutions in Minnesota and the bordering states of Wisconsin, Iowa, North Dakota and South Dakota.

Definition of Terms

In this section we will define the terms, “palliative care”, “caregiver”, and “provider”.

“Palliative care”, as defined by the World Health Organization, encompasses numerous aspects of patient care and education. These include offering pain relief, viewing of death as a normal process, integrating the spiritual and psychological facets of care, offering a support system to those dying and to their caregivers, and using a team-based approach, early in disease management, to enhance the quality of life and, when applicable, to prolong life and “positively influence the course of illness” (WHO, 2015).

The term “caregiver” used in this paper refers to close family members or friends that provide support, both pragmatic and emotional, for the patient. They do not necessarily have power of attorney, nor do they necessarily need to be consulted by the healthcare provider when determining a patient’s course of treatment.

Provider” will be used to refer to licensed and practicing physicians and physician assistants. When evaluating studies, if these criteria were not used as a qualifier for the above labels, notation will be made.

Chapter 2

Literature Review

Introduction

This chapter focuses on the literature related to aging trends within the United States, caregiver, patient, and provider dissatisfaction regarding end-of-life care, medical school end-of-life training, and end-of-life training at PA graduate programs. Many of the articles focus on medical school and physicians since the research on PAs and their end-of-life education is limited. As PAs are becoming more prevalent in medicine, with an expected career growth of 38% from 2012 to 2022, there will be a significant increase in the number of end-of-life circumstances that involve a physician assistant (Bureau of Labor Statistics, 2014). Given the similarities of the educational models between physicians and PAs, utilizing medical school studies would seem to provide the best information available.

Definitions of Palliative Care and End-of-life Care

Palliative care is defined by the World Health Organization as “an approach that improves the quality of life of patients and their families facing problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual” (WHO, 2015).

Palliative care and end-of-life care are often considered interchangeable. According to Quill & Abernathy (2013), the term palliative care originated out of hospice, where patients were treated at the end-of-life to help ease the trauma of death for the patient and their family. Some patients, even those without a terminal disease, have begun working with a palliative care team with the goal of improving the quality of life and reducing the stress associated with long-term, potentially terminal diseases (Quill & Abernethy, 2013).

The General Medical Council of the United Kingdom defines "end-of-life" as patients that "are likely to die within the next 12 months". This definition also includes;

> "patients whose death is imminent (expected within a few hours or days) and those with: (a) advanced, progressive, incurable conditions, (b) general frailty and co-existing conditions that are expected to die within 12 months, (c) existing conditions if they are at risk from a sudden acute crisis in their condition, and (d) life-threatening conditions caused by sudden catastrophic events" (General Medical Council, 2010, p.8).

Current Population Trends

The U.S. population is aging. According to Ortman (2014), in 1970, 9.8% of the total population was 65 or older and by 2010 that number reached 13%. By 2030 that number is expected to rise above 20%, with the population over 65 reaching 83.7 million by 2050 (Ortman, 2014).

Not only is the U.S population getting older, but people are also expected to live longer. As of 2012, 65 year olds had a life expectancy of 18.1 years, which is expected to increase to 20.6 years by 2030. According to estimates, individuals aged 85 will live one year longer, with their life expectancy extending from 6.0 years to 7.0 between 2012 and 2050 (Ortman, 2014). With an aging population, the need for providers to care for patients at the end-of-life is increasing. In fact, the percentage of individuals 65 and older who received hospice care in the last 30 days of life increased from 19% in 1999 to 43% in 2009 (National Institute on Aging, 2012).

Overall, life expectancy has improved, but the burden of chronic disease continues to increase and health care costs are growing exponentially. Approximately 10-12% of the health care budget and 27% of the Medicare budget is spent on end-of-life care (Emanuel, 1996). As the U.S. population ages and increasing funds are being spent on end-of-life care, providers must adjust to meet the changing paradigm of end-of-life needs.

Caregiver Dissatisfaction

End-of-life care can be stressful for both patients and their families. While the majority of studies looked at provider and patient satisfaction regarding end-of-life care, very few have investigated caregiver and family satisfaction levels.

Steinhauser et al. (2000) asked caregivers which factors helped make for a "good death". The most integral factors were found to be “pain and symptom management, clear decision making, preparation for death… and affirmation of the whole person” (Steinhauser et al., 2000, p.826). Teno, Casey, Welch & Edgman-Levitain (2001) conducted a qualitative study of 42 bereaved family members/friends which found similarities between professionals and family members on what quality end-of-life care entailed. Common themes found in the study included symptom management, shared decision-making and emotional support both before and after the patient’s death. Bereaved family members specifically noted the desire for more information on what to expect with the dying process and also other ways that they could help their dying family members (Teno, Casey, Welch & Edgman-Levitan, 2001).

Heyland et al. (2006), in a study of 440 patients and 160 family members, found the most frequent element that was considered extremely important to patients was “to have trust and confidence in the doctors looking after you” (55.8% of respondents). Other responses included “not to be kept alive on life support when there is little hope for a meaningful recovery” (55.7%), “that information about your disease be communicated to you by your doctor in an honest manner” (44.1%) and “to complete things and prepare for life’s end — life review, resolving conflicts, saying goodbye” (43.9%) (Heyland et al., 2006, p.3-4).

In a study by Wessman, Sona & Schallom (2015), poor provider interactions, misunderstanding of a patient’s medical course, and lack of familiarity with medical terminology have been identified as barriers to quality communication between family members and providers. Discussions between family and providers can help to alleviate psychological stress of the surviving family members and decrease the amount of aggressive and potentially unnecessary medical interventions (Wessman, Sona, Schallom, 2015). Curtis (2001) conducted focus groups with a variety of people involved in the dying process (including patients with COPD, cancer, or AIDS, family members who had a loved-one die from a chronic disease, nurses and social workers from hospice or acute care settings, and physicians with expertise in end-of-life care) and identified twelve key domains of integral skills that a provider should possess in order to provide good end-of-life care. The domains identified were competence, pain/symptom management, emotional support, personalization, accessibility/continuity, team communication/coordination, patient communication, patient education, inclusion/recognition of the family, attention to patient values, respect/humility, and support of patient decision making. Across all study groups, the domains felt to be most significant to patients and caregivers included communication with patients and family, emotional support, accessibility to providers, and continuity of care (Curtis et al., 2001).

Current Perspectives of Health Care Providers Regarding End-of-life Care

In a study of physicians and medical students, 99% reported they "have a responsibility to help patients at the end-of-life prepare for death" (Sullivan, Lakoma & Block, 2003, p.689). Also, 90% of physicians felt it was necessary to provide bereavement care to family and caregivers after the patient's death. Although 82% of the medical students and residents had some sort of training in end-of-life care, 39% still felt unprepared to help patients with fears they face with end-of-life topics and 50% felt unprepared to provide bereavement care to the patient's families (Sullivan, Lakoma & Block, 2003). Similar results were found in a survey of hospital interns, which showed 54.2% had no training in discussing bad news with patients or families, 39.6% had no training in pain management, and 35.4% had no training in discussion of prognosis (Ury, Reznich & Weber, 2000).

One of the key steps of providing end-of-life care involves informing the patient the prognosis of their terminal disease. Daugherty & Hlubocky (2008) found that 58% of physicians had no formal training in prognosis delivery. Of the physicians that did receive education in end-of-life prognosis communication, 27% reported that training was inadequate. Ninety-six percent of all participants reported that training in prognosis delivery and education should be including as a facet of cancer care training (Daugherty, Hlubocky, 2008).

A goal of palliative care is to alleviate the pain and emotional stresses felt by the patient in the final days of life. Addington-Hall & McCarthy (1995) published a retrospective study of 2,074 dying cancer patients which showed that 88% of the patients were in pain during their last year of life and 61% reported their pain was very distressing. Additionally, only 47% of patients had either partial or no relief of symptoms (Addington-Hall, McCarthy, 1995). In a telephone interview study by Seamark, Thorne, Lawerence & Pereira (1996), 82% of general practitioners had occasional trouble and 8% had frequent trouble with controlling pain of terminal patients. In the same study, 54% had occasional issues when dealing with the emotional distress of patients and relatives while 18% percent reported frequent issues. Additionally, 69% of respondents had occasional issues coping with personal emotions related to death and dying, while 4% had frequent issues and 1% always had constant issues (Seamark, Thorne, Lawrence, Pereira, 1996).

Unfortunately, a significant portion of physicians feel unprepared and inadequately trained to deal with end-of-life issues. Samant (2001) surveyed 288 family care physicians in Canada, showing that only 41% of physicians received any training in palliative care and only 37% of those receiving training felt it was adequate. Ninety four percent of those surveyed said opportunities for continuing education in palliative care would be beneficial (Samant, 2001). Similar results were found in a survey of 590 medical students in the United Kingdom. Of the students surveyed, 27% had received no training in end-of-life care and 75% had no training in bereavement (Barclay et al., 2003).

A literature review completed by Hearn & Higginson (1998) regarding specialist care teams and their effectiveness found improved patient satisfaction when a palliative care specialist was involved. The studies showed a reduction of costs along with an increase in both time spent at home and patient satisfaction when specialists were involved (Hearn & Higginson, 1998). Therefore, a correlation existed in the amount of end-of-life training received by providers and patient outcomes.

Graduate School Training Towards End-of-life Care

Currently, no universally accepted formal curriculum exists for end-of-life education. Although didactic and experiential training during medical school has been shown to be very effective in preparing providers, there is no consistency among education programs (Von Gunten, 2012). Among a study of Pulmonary and Critical Care programs, 30% reported having a written curriculum related to palliative and end-of-life care (Richman, 2015). Less than 10% of those programs reported using bedside simulations for education (Richman, 2015).

Palliative care rotations during fellowship significantly improve providers' understanding and management of end-of-life care (Von Gunten, 1995). Additionally, bedside teaching has been reported to be seen as "more sufficient" than didactic teaching (Richman, 2015). Yet, as of 2015, only 20% of Pulmonary and Critical Care programs offered palliative care rotations (Richman, 2015).

In specialties where end-of-life training is particularly applicable, the preparation and education is no more codified. Goggin (2015) found that among physicians specializing in cystic fibrosis, only 54% reported being "fully prepared" to deliver end-of-life care (p.2). While 50% reported more than 10 hours of end-of-life training, only 25% had end-of-life care specific to cystic fibrosis (Goggin, 2015). Among general surgery residents, 39% said they were inadequately trained when it comes to discussing possible withdrawal of life-sustaining measures (Cooper, 2010). Houben (2015) found that in patients with end-organ failure, patient satisfaction with provider communication was low at baseline and continued to be low at four, eight, and twelve month follow-ups. Patients mostly attributed this to a complete lack of discussion of end-of-life concerns. When end-of-life was discussed, patients judged the conversations as moderate or good (Houben, 2015).

Standards of end-of-life care have been identified and are changing. In 2001, several domains were identified that require physician competency in order to provide appropriate patient care (Curtis, 2001). While standards have started to be implemented, no governing body holds institutions or providers responsible for end-of-life education. Programs exist that address the inadequacy, though they are often funded through private grants and are difficult to sustain (EPEC, 2010). Given the lack of sustainability and small recruitment numbers, measuring outcomes of these new programs has proven to be difficult (Van Geest, 2001).

Awareness of the shortcomings associated with graduate programs is increasing. In 2008 the American Board of Internal Medicine added a Hospice and Palliative Medicine Certification Program, requiring a board exam to become certified (Hospice and Palliative Medicine Policies, 2015). However, the graduate schools still are lagging behind. Sullivan (2003) looked at the state of medical education in the United States in 2003 and found just 18% of students received formal end-of-life education and 40% felt "dying cases were not considered good teaching cases" (p.689). If a patient was terminal, the psychosocial aspect of care was not considered teachable (Sullivan, 2003). As a result of this lack of formal training, an American Society of Clinical Oncology study found 90% of oncologists learned about palliative care through trial and error, with 81% saying they received “inadequate mentoring or coaching in discussing poor prognosis” (Ferris, 2009, p.3053).

PA Training in Palliative Medicine

As of 2010, the Accreditation Review Commission on Education for the Physician Assistant, the accrediting board for PA programs across the United States, included in the fourth edition of Accreditation Standards a requirement for PA programs to include palliative and end-of-life care in the program curriculum (Accreditation Standards for Physician Assistant Education, 2010). Students at The Medical College of Georgia PA program requested “more frequent and more specific instruction in end-of-life symptom management and particularly how to appropriately manage pain, especially opioid dosing, in the critically ill or dying patient” (Lanning & Dadig, 2010, p.44). Lanning’s research also showed the most valuable experiences for PA students were inpatient care, home visits, and family conferences at the bedside (Lanning & Dadig, 2010).

Berge, Prerost & Foltz (2001) found that of 669 PAs in Illinois 54% of respondents would like to be more knowledgeable about hospice and palliative care. The survey also showed that 46.9% requested more education in “death and dying issues”. Interestingly, the survey reported that 58.2% of PAs referred the patient to hospice for “relief of health care worker” (Berge, Prerost & Foltz, 2001, p.179). Another survey of PA students by Prazak, Lester & Fazzani (2014), this one after the new 2010 recommendations were in place, looked at seven palliative care skills including pain assessment, dosing oral and parenteral opioids, using adjuvant analgesics, managing delirium at end of life, assessing non-pain symptoms and managing opioid side effects. The survey found that students had perceived limitations in their “knowledge in assessing non-pain symptoms, opioid side-effects, and performing general pain assessment” and “their scores on self-perceived knowledge corresponded to the factual knowledge trend” (Prazak, Lester & Fazzari, 2014, p.71).

Additionally, PAs feel unprepared to provide end-of-life care in a hospital setting. In a separate study of hospitalist PAs at Johns Hopkins Bayview Medical Center in Baltimore, Torok, Lackner, Landis & Wright (2012) found 85% strongly agreed palliative care training for PA students is lacking. The majority (91%) even stated they would take a pay cut during their first year of employment in the hospital in order to complete a postgraduate hospitalist training program that prepared them to deal with areas they felt that they were lacking such as palliative care (Torok, Lackner, Landis & Wright, 2012).

Conclusion

The number of patient receiving care from PA’s continues to rise in the United States. With an aging population and an increasing demand for palliative medicine, little research is published on the proficiency of PAs in end-of-life care. As institutions move forward with implementation of new educational models and procedures for end-of-life training, it is crucial that practitioners are taught in an efficient and effective manner.

Chapter 3

Methodology

Introduction

The purpose of this study is to evaluate PA education regarding end-of-life care. The researchers intend to answer the question of how adequately PAs are prepared to deal with end-of-life care given the current curriculum and training experiences during graduate school.

The research questions this study intends to address are as stated below:

1. How comfortable are PAs at providing end-of-life care, according to the twelve domains as defined by Curtis et al.?
2. To what degree do PAs feel they were prepared during their formal education at providing end-of-life care?
3. How well do PA program directors/education coordinators feel their programs prepare students to provide end-of-life care?

This chapter will address the study design, methods, subjects, validity and reliability, data analysis, and limitations/delimitations.

Study Population

The subjects of this study included practicing PAs belonging to the Minnesota Association of Physician Assistants (MAPA). The researchers emailed the survey to MAPA administrators, who then distributed the survey to current active MAPA members. The survey was administered to a total of 510 active PAs.

The subjects of the qualitative interview with PA program directors/education coordinators included programs in the following states: Minnesota, Wisconsin, Iowa, North Dakota, and South Dakota. The researchers attempted to contact a total of thirteen program directors/education coordinators, however only four were interviewed. No identifiable information was collected from the MAPA members, PA program directors, or their affiliated PA programs.

Materials Used

The email addresses of the physician assistants were accessed through MAPA. The PA program directors/education coordinators contact information was found via the Physician Assistant Education Association website.

Study Design

This study consisted of a descriptive quantitative survey of practicing PAs belonging to MAPA and a descriptive qualitative survey of the PA school program directors/education coordinators in the states of Minnesota, Wisconsin, Iowa, North Dakota, and South Dakota.

Instrumentation

An online survey, composed using the website www.surveymonkey.com, was emailed to practicing PAs belonging to MAPA. A copy of the survey can be found in Appendix A. The web-based questionnaire was accessed via a hyperlink received through an e-mail. Informed consent was obtained before administration of the survey. A copy of the informed consent for the PA survey can be found in Appendix B. The survey first addressed demographics of the PA completing the survey, including how many years they have been in practice, what area of medicine they were currently practicing in and how often they care for patients at the end of life. This was followed by questions that required the subject to rate their comfort level on a scale from 1-4 regarding the twelve domains of physician skills found by Curtis et al. The order of these questions was randomized by domain. Each survey contained identical questions for each participant. The final aspect of the survey included a free response section which asked for the PA's personal views on if they wished for more palliative care training before entering practice and ways that palliative care training may be improved.

The instrumentation was reviewed by a panel of practicing PAs, physicians and educational directors. Revisions were made based upon their feedback on question structure, word choice, and anything that the experts felt would create a better survey. Prior to distribution of both surveys, the researchers gained IRB approval through the Bethel University IRB committee. The PA survey was then distributed by email to the practicing PAs that opted into sharing their email addresses through the MAPA membership directory. Each participant was sent a reminder e-mail ten days after the original e-mail was sent in an attempt to increase response rates. A copy of the reminder e-mail can be found in Appendix C.

The program survey was conducted through phone calls by the researchers and was recorded after informed consent was obtained. A copy of the informed consent can be found in Appendix D. The interviews were reviewed and the qualitative data was analyzed for common themes. A copy of the program director survey can be found in Appendix E.

While the data was being collected, it was stored on the www.surveymonkey.com server. During the data analysis, the data was stored on the SPSS server. Data storage will be in a secure, locked area of Bethel University's Physician Assistant Program for a minimum of five years.

Validity and Reliability

The surveys being used for this study were compiled by the researchers. The questions for the practicing PAs were original questions derived from the twelve domains of end-of-life care as described by Curtis et al. An expert panel of practicing PAs, physicians and education coordinators reviewed the surveys. The panel analyzed the construct validity and also provided feedback on word choice and possible ambiguity in the questions.

The survey used for the program directors consisted of the researchers' original questions derived from Barnard et al (1999). This survey also underwent construct validity and ambiguity review by a panel of experts. The qualitative survey was read from a script to control for intertester reliability and minimize variability.

Data Analysis

The quantitative data was entered into SPSS and analyzed by the researchers under the direction of statistics faculty. The responses from the practicing PA survey were analyzed by specific domain, as described by Curtis et al. The researchers analyzed individual question responses by median and mean. Then, each of the twelve domains, consisting of 2-3 questions, were analyzed by group mean and median descriptors. The demographic data was analyzed by one way ANOVA with training history and gender data analyzed by independent t-test.

The quantitative data was further analyzed by construct. The twelve domains were grouped into three distinct constructs; competence, compassion, and communication. These constructs represented three distinct aspects of patient care. The competence construct consisted of domains 4, 7, and 9, competence, patient education, and pain and symptom management, respectively. The communication construct consisted of domains 1, 3, 6, and 10, communication with patients, accessibility and continuity, team communication, and inclusion/recognition of the family, respectively. Finally, the compassion construct consisted of domains 2, 5, 8, 11, and 12, emotional support, respect and humility, personalization, attention to patient's values, and support of patient decision making, respectively. Construct data was also analyzed by one way ANOVA for the demographic data and independent t-tests for the training background and for gender

The qualitative data from the PA program director interviews was analyzed for common themes. The interest in end-of-life care, time spent on education, and limitations to providing education was scrutinized and examined for each institution that was interviewed. .

Limitations and Delimitations

The provider survey population was limited to practicing PAs that were current members of MAPA at the time of the study. The survey response rate was limited. Despite reaching out to multiple programs, the qualitative survey of the PA program directors was limited to only 4 programs. It also required subjects to look critically at their own program and assess areas of teaching that may be lacking. Additionally, the interview required that the educational institutions answer truthfully about their programs. The educational institutions/program directors contacted was limited to programs in Minnesota and the surrounding states (Wisconsin, Iowa, North Dakota and South Dakota).

Conclusion

Throughout this chapter, the researchers have looked at the study population, materials used, study design, instrumentation, validity, reliability, data analysis, limitations as well as delimitations of the study. All together, this helped to answer the research question as to whether physician assistants feel adequately prepared to deliver end-of-life care with the education that they were provided during graduate school. In the following chapter the researchers will analyze the data obtained from the survey tools and assess for trends in the data.

Chapter 4

Results

Introduction

Chapter four includes the results and analysis of the Physician Assistant End-of-Life Education survey. Descriptive analysis, including demographics and training background, are provided for the survey respondents. Cross tabulation analysis was run for all demographic categories and for demographic by training categories.

After descriptive analysis was completed, survey results were then analyzed by question, domain, and construct. Mean, standard deviation, and standard error were calculated for each question, for each domain provided by Curtis et. al (2001), and for the created constructs; communication, compassion, and competence. Means were then analyzed for significance using one-way ANOVA for years in practice, area of medicine, frequency of end-of-life care. Independent t-tests were used to analyze the effect of gender and each training modality.

Responses to question 9 of the Physician Assistant End-of-Life Education Survey, asking respondents, “Did you wish that you had more end-of-life training before starting practice? If so, in what format?” were then subdivided into affirmatives and negatives. The affirmatives were then grouped by type of training mentioned in the free response.

Phone call requests were sent out by email to thirteen PA programs in the states of Minnesota, Wisconsin, Iowa, North Dakota, and South Dakota. Researchers interviewed 4 programs within those states and transcribed their responses. Due to the paucity of response rate, formal analysis was deferred, but responses will be utilized within the discussion portion below.

Survey Population

Of the 510 active MAPA members that the survey was sent to, 120 completed the survey, with an overall response rate of 23.5%.

Descriptive Statistics

Of the 120 respondents, 119 answered the gender question; 23 (19.3%) participants responded male, 96 (80.7%) female. In terms of years in practice, 20 (16.7%) had been in practice 0-1 year, 21 (17.5%) 2-3 years, 16 (13.3%) 4-6 years, 17 (14.2%) 7-10 years, and 46 (38.3%) had been in practice 10+ years. For the area of medicine practiced by respondents, 39 (32.8%) family medicine, 15 (12.6%) internal medicine subspecialty, 3 (2.5%) oncology, surgery 5 (4.2%), emergency medicine 7 (5.8%), subspecialty-other 21 (17.7%), other 29 (24.4%). Lastly, for frequency of end-of-life care delivered, not at all, 46 (38.3%), less than 5 times per year, 37 (30.8%), 5-12 times per year, 19 (15.83%), 2 times per month, 8 (6.7%), more than 2 times per month 10, (8.3%).

Of the 120 respondents, 67 (55.8%) had no formal training, 31 (25.8%) had didactic year training, 18 (15%) had clinical year training, 13 (10.8%) had Continuing Education Units (CEU)/ Continuing Medical Education (CME) training, 13 (10.8%) had workplace training, 6 (5%) described other types of training.

Cross Tabulations of Descriptive Statistics

Cross tabulations were performed of descriptive statistics, a complete table of all cross tabulations can be found in Appendix F. Notably, of the recent graduates, those in practice three years or less, 38.5% had received some sort of didactic year training. Of those in practice 4 years or more, only 11.5% received some sort of didactic year training.

Of the 10 respondents that provide end-of-life care 2+ times per month, 3 had training in didactic year, 4 had training during clinical year, 2 have had CEU/CME training, 4 had workplace training, and 1 had other training, with 8 of 10 describing some type of formal training.

Of the 46 respondents that do not provide end-of-life care at all, 30 describe no formal training at all, 13 had didactic year training, 3 had clinical year training, 4 had CEU/CME training, 2 had some other type of training, and 1 had workplace training.

Question-Focused Analysis

For question analysis, mean, standard deviation, and standard error were calculated, a breakdown of questions can be found in figure 1. Respondents were most uncomfortable with question 29, “talking with patients about what the dying process might be like” (mean 2.08), question 8, “determining hospice eligibility” (mean 2.38), and question 23, knowledge about the care patients need during the dying process (mean 2.59).

Respondents were most comfortable with question 2, “showing compassion” (mean 3.78), question 7, “honoring patients’ wishes about end-of-life care” (mean 3.76), and question 10, “encouraging questions from patients” (mean 3.73).

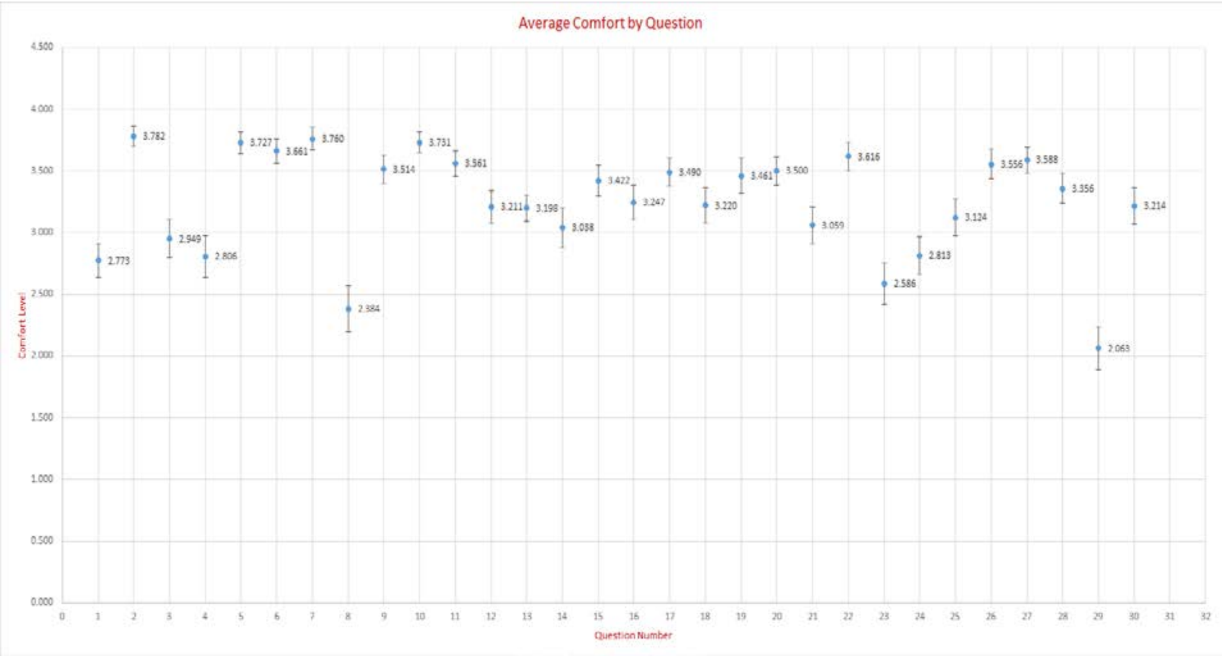

***Figure 1**:* Average comfort level of PAs by question

1. Delivering bad news
2. Showing compassion
3. Having contact with family after the patient's death
4. Knowing when to stop treatments when they are no longer helpful
5. Admitting when you do not know something
6. Acknowledging the patient's personal beliefs
7. Honoring patient's wishes about end-of-life care
8. Determining hospice eligibility
9. Treating the patient, not the disease
10. Encouraging questions from the patient
11. Including family in the decision making
12. Explaining to the patient how the illness may affect his or her life
13. Maintaining hope and a positive attitude
14. Continuing to be involved with the patient after a referral to hospice
15. Being responsive to patient's emotional needs
16. Providing treatment options and advice about medical care
17. Acknowledging patient's culture, religious or spiritual beliefs
18. Acknowledging and treating patient's anxiety and depression
19. Making sure there is someone available to help the patient when you are not available
20. Taking into account the patient's wishes when treating pain and symptoms
21. Overall comfort with people who are dying
22. Treating patients and families as your equals
23. Knowledge about the care patients need during the dying process

24. Helping patients and families understand how to provide symptom and pain control
25. Giving enough detailed information so that the patient understands his or her illness and treatments
26. Making a patient feel unique and special
27. Openly and willingly communicating with the patient's family
28. Helping the patient and family get consistent information from the healthcare team
29. Talking with the patient about what dying might be like
30. Considering the patient's social situation when creating treatment plan

Significant Questions

Of the 30 questions, gender was a significant difference in only question 13, “comfort of maintaining hope and a positive attitude” (male mean, 3.47, female mean, 3.12). Males were more comfortable with maintaining hope according to this research. However, when it came to every other measure investigated, no significant results were found.

As for area of medicine and comfort level, significant difference was found in question 1, “delivering bad news”, question 8, “determining hospice eligibility”, question 16, “providing treatment option”, and question 23, “knowledge about the care dying patients need during the dying process”. For all the questions that showed significance, oncology specialists demonstrated the most comfort while emergency room and family practice providers consistently were the least comfortable.

Time in practice was found to significantly affect two questions, question 18, “acknowledging and treating the patient” and question 29, “talking with the patient about the dying process”. Those in practice 0-1 years were significantly less comfortable with acknowledging and treating the patient. Those in practice 4-6 years or less were significantly less comfortable with talking about the dying process compared to those in practice 7+ years.

Frequency of end-of-life care also made a significant difference in provider comfort with delivering end-of-life care. There was significant difference in comfort level in those that provide frequent end-of-life care and those that did not. Differences were found in questions 1, “delivering bad news”, 5, “admitting when you do not know something”, 8, “determining hospice eligibility”, 23, “knowledge about the dying process”, and 24, “helping patients and families understand how to provide symptoms relief”. It appears that to have an increased comfort level, providers needed to provide end-of-life care at least 2 times per month. There was not an appreciable difference in comfort between those that provided care not at all and those that provided it up to once per month.

Domain-Focused Analysis

To compare domain comfort level, responses for each question in the domain were combined and a mean, standard deviation, and standard error were calculated based on the aggregate questions. Domain 1 “Communication with patients” (questions 1 and 10), domain 2, “Emotional support”, (questions 2, 13, and 15), domain 3 “Accessibility and continuity”, (questions 3 and 14, domain 4), “Competence”, (questions 4 and 23), domain 5 “Respect and humility”, (questions 5, 21, and 22), domain 6, “Team communication and coordination”, (questions 19 and 28), domain 7, “Patient education”, (questions 12, 25, and 29), domain 8, “Personalization”, (questions 9, 26, and 30), domain 9, “Pain and symptom management”, (questions 18, 20 and 24), domain 10, “Inclusion/recognition of the family”, (questions 11 and 27), domain 11, “Attention to patient’s values”, (questions 6 and 17), and domain 12, “Support of patient decision making”, (questions 7 and 16).

To see the complete breakdown of comfort level by domain, see figure 2 below. Respondents were most uncomfortable with domain 4, “Competence” (mean 2.70) and domain 7, “Patient Education” (mean 2.82). They were most comfortable with domain 11, “Attention to patient’s wishes” (mean 3.58), and domain 10, “Inclusion/Recognition of Family” (mean 3.57).

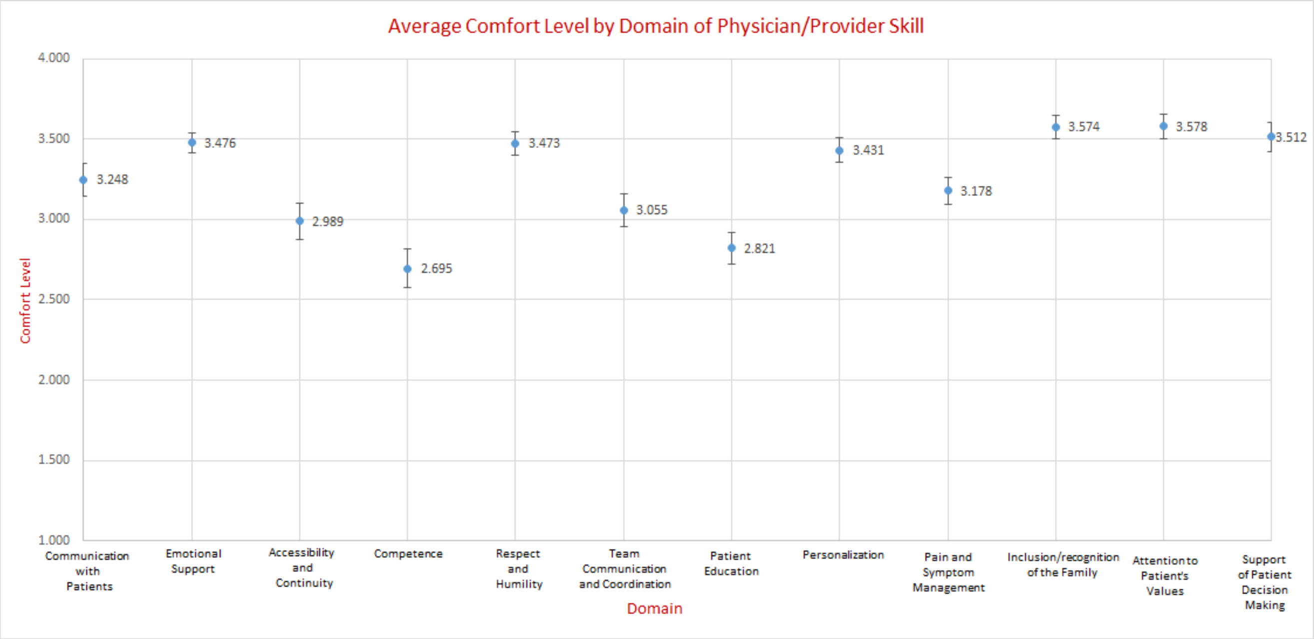

Figure 2: Average comfort level of PAs by domain

Domain Demographics

When domain means were analyzed by demographic data, using one way ANOVAs, years in practice significantly affected comfortability in domain 7 (patient education) and domain 9 (pain and symptom management (Table 19). Area of medicine significantly affected domain 4 (competence), domain 6 (team communication and coordination), domain 10 (inclusion/recognition of family), and domain 12 (support of patient decision making) (Table 20). Frequency of end-of-life care significantly affected domains 4 (competence), domain 6 (team communication and coordination) and domain 9 (pain and symptom management) (Table 21). For further breakdown see Appendix G.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
0-1	3.06	3.41	2.88	2.32	3.27	2.93	**2.53**	3.24	**2.81**	3.50	3.55	3.39
2-3	3.18	3.44	2.71	2.56	3.47	3.04	**2.59**	3.38	**3.18**	3.49	3.54	3.43
4-6	3.37	3.40	2.85	2.79	3.48	2.98	**2.77**	3.35	**3.26**	3.59	3.66	3.62
7-10	3.20	3.45	3.14	2.92	3.47	2.92	**2.83**	3.59	**3.29**	3.45	3.41	3.46
10+	3.25	3.56	3.15	2.81	3.56	3.19	**3.07**	3.50	**3.26**	3.69	3.64	3.59

***Table 1**:* Means of Domain by Years in practice

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Family Medicine	3.18	3.50	3.08	**2.59**	3.47	**3.02**	2.76	3.44	3.21	**3.49**	3.56	**3.34**
Internal Medicine	3.47	3.40	3.22	**2.97**	3.62	**3.24**	2.93	3.42	3.04	**3.73**	3.70	**3.60**
Oncology	3.83	3.56	3.60	**3.83**	3.67	**3.67**	3.22	3.89	3.44	**3.67**	3.83	**4.00**
Surgery	3.63	3.60	2.43	**2.71**	3.67	**2.80**	2.50	3.40	3.22	**3.71**	3.29	**3.86**
Emergency Medicine	3.31	3.43	2.78	**2.71**	3.43	**2.61**	2.48	3.50	3.10	**3.50**	3.43	**3.36**
Subspecialties	3.08	3.60	3.04	**2.41**	3.44	**3.28**	2.98	3.51	3.13	**3.78**	3.76	**3.75**
Other	3.16	3.38	2.66	**2.63**	3.34	**2.86**	2.76	3.26	3.20	**3.40**	3.43	**3.42**

Table 2: Means of Domain by Area of Medicine

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
None	3.05	3.41	2.85	**2.38**	3.39	**2.80**	2.72	3.30	**2.94**	3.48	3.49	3.42
<5/y	3.31	3.55	2.93	**2.61**	3.43	**3.09**	2.80	3.50	**3.33**	3.57	3.65	3.49
5-12/y	3.32	3.44	3.10	**2.84**	3.56	**3.12**	2.96	3.45	**3.07**	3.62	3.55	3.47
1-2/mo	3.60	3.50	2.87	**3.13**	3.77	**3.23**	3.09	3.57	**3.33**	3.93	3.60	3.80
2+/mo	3.39	3.48	3.53	**3.44**	3.52	**3.52**	2.78	3.48	**3.50**	3.56	3.71	3.78

Table 3: Domain means by Frequency

Domain Training

People with no formal training were significantly more comfortable than those with training in domain 1 (communication with patients). People with no didactic year training were significantly more comfortable in domains 4 (Competence), 5 (Respect and humility), 6 (Team communication and coordination), 7 (Patient education), 8 (Personalization), 9 (Pain and symptom management), 10 (Inclusion/ recognition of the family), and 11 (Attention to patient's values). For further breakdown, see Appendix G.

Clinical training showed no significant difference in comfort levels in any of the domains. Respondents with CEU/CME training showed more comfort with domain 9 (Pain and symptom management). Those with workplace training showed significantly more comfort with domains 3, 4 (Competence), 5 (Respect and humility), 6 (Team communication and coordination), 7 (Patient education), 8 (Personalization), and 9 (Pain and symptom management).

Respondents with other training were significantly more comfortable in domains 3 (accessibility and continuity), 4 (Competence), 6 (Team communication and coordination), 7 (Patient education), 8 (Personalization), 9 (Pain and symptom management), 10 (inclusion and recognition of the family), 11 (Attention to patient's values), and 12 (Support of patient decision making).

Construct-Focused Analysis

To analyze construct comfort levels, responses from each domain were grouped into three constructs. Domains 1, 3, 6, and 10, "Communication with patients", "Accessibility and continuity", "Team communication and coordination", and "Inclusion/recognition of family" were combined to make the "Communication" construct. Domains 2, 5, 8, 11, and 12, "Emotional support", "Respect and humility", "Personalization", "Attention to patient's values", and "Support of patient decision making" were combined to form the "Compassion" construct. And, finally, domains 4, 7, and 9, "Competence", "Patient education", and "Pain and symptom management" were combined to form the "Competence" construct. Responses from the aggregate questions in each construct were then analyzed for means, standard deviation, standard error and analyzed through one-way ANOVA by demographic data and by independent t-test by training obtained.

When grouping the domains into constructs (competence, communication, and compassion), respondents felt least comfortable in the competence construct (mean 2.92), and most comfortable with the compassion construct (mean 3.49), with communication lying in between (mean 3.21).

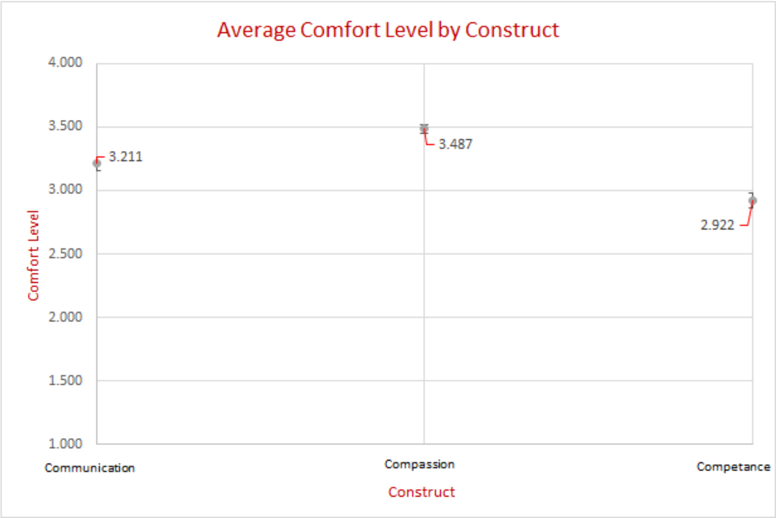

Figure 3: Average comfort level by construct

Constructs and Demographics

There was no significant difference found between genders when it came to comfort levels within the constructs. When construct means were analyzed by demographic data using one way ANOVAs, years in practice significantly affected compassion and competence, with providers becoming more comfortable as they gain more years of experience. Area of medicine significantly affected all three constructs. Providers in oncology were significant more comfortable in the competence construct. They were also significantly more comfortable when it came to compassion. When it came to communication, internal medicine and oncology both proved to be significantly more comfortable than the other areas of medicine. Frequency of care also significantly affected all three constructs.

	Communication	Compassion	Competence
Family Medicine	3.18	3.47	2.89
Internal Medicine	3.40	3.53	2.98
Oncology	3.69	3.77	3.46
Surgery	3.13	3.56	2.81
Emergency Medicine	3.04	3.43	2.77
Subspecialty	3.31	3.59	2.90
Other	3.03	3.36	2.89

Table 4: Construct Means by Area of Practice

	Communication	Compassion	Competence
0-1 year	3.09	3.36	2.59
2-3 years	3.12	3.44	2.80
4-6 years	3.18	3.48	2.96
7-10 years	3.16	3.48	3.02
10+ years	3.33	3.56	3.08

Table 5: Construct Means by Years in practice

	Communication	Compassion	Competence
Not at all	3.04	3.39	2.71
Less than 5x/year	3.22	3.52	2.95
5-12x/year	3.28	3.49	2.97
1-2x/month	3.39	3.64	3.19
2+x/month	3.50	3.57	3.21

Table 6: Construct Means by End-of-Life care frequency

Construct Analysis by Training

Independent t-tests were run for all methods of training, comparing the means for each construct. The overarching question of whether someone received formal training was found to not make significant statistical difference in comfort with any construct (Table 7). Didactic training was found to actually make practitioners less comfortable in all three constructs (Table 8). Clinical year training was found to to not make significant difference, though was trending towards higher levels of comfort in the construct of compassion (Table 9). CEU/CME training improved comfort levels in the competence construct (Table 10). Workplace and other training was found to significantly improve comfort levels in all three constructs (Tables 11 and 12).

	Formal	**N**	**Mean**	**STD**	**SE**	**CI of difference**
Communication	**N**	405	3.26	.813	.040	(-.197-.028)
	Y	487	3.17	.898	.041	
Compassion	**N**	605	3.47	.654	.027	(-.035-.109)
	Y	737	3.50	.690	.025	
Competence	**N**	361	2.95	.882	.046	(-.187-.071)
	Y	429	2.90	.967	.047	

Table 7: 95% CI for Formal Training

	Didactic	**N**	**Mean**	**STD**	**SE**	**CI of difference**
Communication	**Y**	226	3.07	.871	.058	**(-.319 - -.056)**
	N	666	3.26	.853	.033	
Compassion	**Y**	344	3.35	.708	.038	**(-.271 - -.100)**
	N	998	3.53	.655	.021	
Competence	**Y**	203	2.70	.902	.063	**(-.438 - -.147)**
	N	587	3.00	.927	.038	

Table 8: 95% CI for Didactic Year training

	Clinical	**N**	**Mean**	**STD**	**SE**	**CI of difference**
Communication	**Y**	134	3.29	.692	.060	(-.039 - .228)
	N	758	3.20	.887	.032	
Compassion	**Y**	199	3.41	.628	.045	**(-.190 - .003)**
	N	1143	3.50	.681	.020	
Competence	**Y**	120	2.93	.758	.069	(-.151 - .159)
	N	670	2.92	.957	.037	

Table 9: 95%CI for Clinical Year training

	CEU/CME	**N**	**Mean**	**STD**	**SE**	**CI of difference**
Communication	**Y**	85	3.20	.897	.097	(-.214 - .190)
	N	807	3.21	.858	.030	
Compassion	**Y**	125	3.48	.667	.060	(-.131 - .117)
	N	1217	3.49	.675	.019	
Competence	**Y**	72	3.21	.871	.103	**(.100 - .531)**
	N	718	2.89	.930	.035	

Table 10: 95% CI for CEU/CME training

	Workplace	**N**	**Mean**	**STD**	**SE**	**CI of difference**
Communication	**Y**	90	3.43	.654	.069	**(.098 - .397)**
	N	802	3.19	.878	.031	
Compassion	**Y**	135	3.67	.501	.043	**(.115 - .302)**
	N	1207	3.47	.688	.020	
Competence	**Y**	80	3.38	.624	.070	**(.350 - .659)**
	N	710	2.87	.944	.035	

Table 11: 95% CI for Workplace training

	Other	**N**	**Mean**	**STD**	**SE**	**CI of difference**
Communication	**Y**	52	3.73	.528	.073	**(.394 - .710)**
	N	840	3.18	.867	.030	
Compassion	**Y**	75	3.76	.430	.050	**(.184 - .395)**
	N	1267	3.47	.682	.019	
Competence	**Y**	48	3.60	.676	.098	**(.520 - .934)**
	N	742	2.88	.926	.034	

Table 12: 95% CI for Other training

Need for more training and what type of training

When responding to question 9, “Do you wish you had more end-of-life training before starting practice?”, 53 respondents (84%) said, yes they wish they had more, 10 respondents (16%) said no, mostly owing to the fact that they do not have much interaction with end-of-life care in their current practices.

Respondents were also asked what format of training they would find most beneficial to learn about end-of-life. This question was analyzed via common themes presented during the discussion portion of the responses to question 9. Of those who wished for more training, 38% wanted more training during their didactic year, 30% wanted more during their clinical year, 10% wanted CEU/CME opportunities. As for training specifics, 17% would have found discussions with hospice specialists helpful, with 4% wanting more exposure to Physicians Orders for Life Sustaining Treatment (POLST) forms and Advanced Directives. (Figure 4).

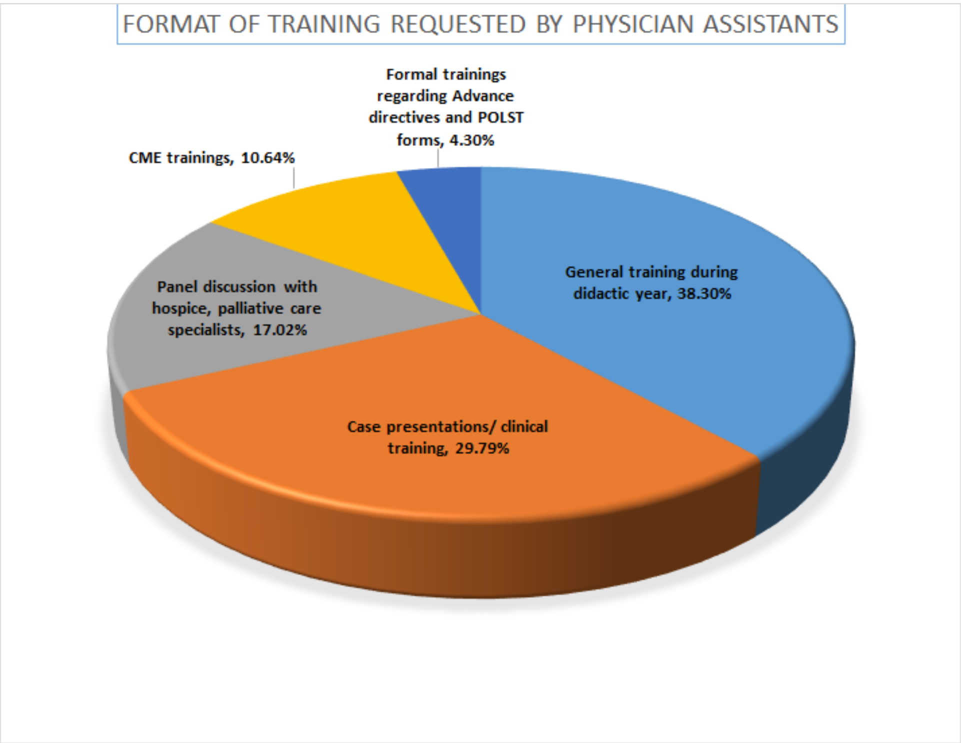

Figure 4: Format of training requested by physician assistants

Chapter 5

Discussion

Introduction

The aim of this research project was to gauge how comfortable PAs are in dealing with patients at end-of-life. This project also served to evaluate end-of-life training within formal education and to help determine the best way to train PAs in dealing with end-of-life care. Overall, it was found that the majority of PAs are not receiving training during their didactic and clinical years. Furthermore, of the PAs that are getting trained, the training is actually making them less comfortable when it comes to the constructs analyzed by this study.

According to the results, PAs proved to be most comfortable in the constructs of compassion and communication, being least comfortable in the area of competence. Those with more years in practice and with more frequency in providing care had improved competence. When it came to training, didactic training was shown to decrease comfort levels in all three constructs, with CEUs/CMEs, workplace and other training shown to improve competence comfort.

Lack of Training

In the final open ended question, PAs were asked if they desired more end-of-life training and if so, in what format. Of those who responded, 84% stated that they wished they had more training, while the remaining respondents stated they did not wish for more training due to not dealing with end-of-life care in their practice.

During the discussions with program directors and education coordinators, the respondents stated they believed that PAs had a good base of knowledge when graduating from PA school, but in actuality PAs feel under prepared after graduation and request more training.

Who Excels

As expected, when it came to constructs, the area of medicine made a significant difference in all three constructs. Oncology practitioners felt most comfortable in all three constructs. Perhaps when it comes to training our future PAs education coordinators could reach out to the individuals with the most comfort, bringing in oncology providers to talk about the strengths of their chosen fields.

When looking at time in practice with the entire constructs, providers in practice longer were significantly more comfortable when it came to the areas of compassion and competence. This is not a surprise given the increased chance for experience and exposure with a longer time in practice. There was a trend towards more comfort regarding years in practice when it came to communication, though this was not significant.

Frequency of care also made significant difference when it came to all three constructs. Similar to the specific questions, there appears to be a minimum frequency that makes a significant difference. Practitioners need to provide end-of-life care at least 2 times per month to see a significant difference in comfortability when compared to their peers.

Training That Works

With training time and resources being limited, it is important to ensure programs are being efficient with their training. It was shown didactic year training makes people less comfortable in all three constructs. This, most likely, represents students gaining a little awareness and realizing how much they do not know. This also could be an indication that what little training does occur during didactic year, has not shown to be effective. When looking at clinical year, the time when most programs think their didactic training is solidified, very few actually received clinical year training in palliative care topics, and the ones that did showed no significant change in competence or communication, with a trending decrease in compassion.

It appears training after graduation, i.e. CEUs/CMEs, workplace training, and outside, other exposure, affects comfort levels more than didactic or clinical exposure. CEUs/CMEs were able to target the competence construct well. Though the specific modules found in CEU/CME training was not addressed in this study, it appears to be an effective way to increase a person's knowledge base.

Workplace training was found to have a significant effect in all three domains. This could represent the nature of workplace training, typically in small groups, with a variety of staff present. It seems to show that small group training is effective at, not only improving knowledge, but also improving communication, another key factor in end-of-life care.

Outside exposure, typically through private situations, hospice with a family member or hospice volunteering, made the most significant difference in comfort level. While programs clearly cannot put students in that position, perhaps more hospice exposure and panel discussions with patients and/or families during didactic or clinical year could improve comfort levels among providers.

How We Can Improve

When it comes to how to improve, the most important factor seems to be the lack of training. Of all the respondents, less than ⅓ had training during didactic year. And, of those that received didactic training, their comfort level actually decreased. While this has not been studied, students' didactic exposure could be giving them insight into how important this facet of care is, while not actually training them on how to improve their skills. It has been shown in previous studies involving medical school that students actually lose compassion during school. Perhaps this is because the talk about patients becomes very academic and impersonal or because of the inherent fatigue that comes with the rigors of medical school. Discussions regarding death, the dying process and end-of-life care are often superseded by talk about diagnoses, lab values, and differentials. All of these are, of course, important, but when less than ⅓ of PAs are exposed to any end-of-life training during didactic year, perhaps there needs to be a slight shift back towards patient-centered care and care of the whole person.

As students move further into their education, the training statistics are even worse. Many of the programs expected their students to have more exposure and training while on clinicals. It was found that only 15% had training during their clinical year. Programs stated they rely on preceptors for this integral part of education and unfortunately it is not happening. This could be because these situations are typically very personal, and preceptors might feel it is an invasion of privacy to have students involved, or perhaps they feel uncomfortable themselves and would rather not have students in the room. Whatever the reason, the training is not happening and students are coming out less prepared.

As providers move into their careers, it was shown that workplace and CEU/CME training certainly are effective. The number of providers receiving training in their careers through CEU/CME and workplace training is smaller than those receiving didactic and clinical training, although this is to be expected as it is specific to certain areas of medicine. However, it was found that only 10% receive this type of training. Therefore, it would seem that a great number of PAs providing care did not receive effective didactic and clinical training, and aren't receiving the beneficial CEU/CME and workplace training. One revealing statistic is that workplace training can help, not only with competence, but also with communication and compassion. Training with others in a workplace setting appears to make a significant difference in all aspects, hopefully improving overall patient care.

Recently, it appears that PA programs have started incorporating more end-of-life training in their curriculum. All the programs we spoke with acknowledged the importance of end-of-life education and it seems they are taking this seriously. Of the 52 respondents in practice 0-3 years, 20 (35%) received some type of training during didactic year. For those in practice longer than 3 years, 11 of 79 (11.5%) answered that they had training during didactic year. It is evident that this is becoming more of focus during didactic training. During clinical year however, the focus has not improved. Of the 52 respondents in practice between 0-3 years, only 15.4% received training during clinical year, not much improved from the overall 12%.

It is clear PAs coming out of school desire more training in this area. Of the 121 physician assistants that took the survey, 63 responded to the open ended question asking if they wished for more training before starting practice. Out of these 63 respondents, 53

(84%) stated yes, they did wish for more training. This is a difficult thing to balance; PA school curriculum is very full to begin with. That means that if schools devoted more training to end-of-life training then, they would have to take away from other crucial training that PA students go through or integrate the end-of-life care in inventive ways.

The best thing that schools can do is be the most efficient with the limited time they have. PAs that answered the final open ended question were asked what format of training would be most beneficial to them if they had more training. Didactic and clinical training that increases personal experiences would seem to be the most effective training methods given the data. This type of training could include bringing in palliative care specialists, caregivers of those in hospice, and increasing exposure to patients receiving palliative care.

Limitations and Delimitations

Limitations of the study included only distributing surveys to practicing PAs within MAPA, and required respondents to be truthful with their answers. Only 120 PAs responded out of the 510 MAPA PAs that were surveyed. The other limitation of the study included, surveying PA programs in the states of: Minnesota, Wisconsin, Iowa, North Dakota, and South Dakota. Of the 15 PA programs that were requested for interview, only 4 responded to researcher’s inquiries, so analysis could not be performed. Limited response rate of PA program directors and education coordinators was a limitation of the study.

Future Studies

Future researchers could look at comparing PAs to other medical providers in terms of comfort levels and in terms of the end-of-life education received. They could also investigate the effectiveness of more recent didactic education versus those that received didactic education a number of years ago. We did not measure the effectiveness of more recent didactic education, though those in practice for a shorter time still were not more comfortable. There was a trend towards more comfort regarding years in practice when it came to communication, though this was not significant. This could be due to PAs having great mobility and perhaps changing jobs with enough frequency to not create the bonds needed for seamless communication when it comes to end-of-life patients. But, this was not examined in-depth in this study and could be subject for a future study. Another facet to consider is whether increased provider comfortability actually leads to improved patient and caregiver outcomes. When measuring caregiver outcomes, a future study could perhaps delineate immediate satisfaction of caregivers with satisfaction after a period of time after death.

Conclusion

As the population continues to age, it is anticipated that end-of-life care will become an increasingly important aspect of most providers' practices. As physician assistants continue to play an ever-expanding role in patient care, it is imperative they have a high level of comfort with this aspect of their practice.

Due to the paucity of research regarding physician assistant training in regards to end-of-life education, researchers aimed to answer the questions of how comfortable PAs are in dealing with end-of-life care, how effective various trainings are in teaching end-of-life education, and if this is an area that is being acknowledged by PA programs as a potential weakness in PA training.

Based on the literature review, it was discovered that physicians, whom share a similar training model with PAs, are not being trained effectively and request more training before starting practice. Similar findings were revealed during this study, in that PAs feel underprepared coming out of school in dealing with end-of-life care. PAs that did receive training during school, also felt unprepared to deliver end-of-life care, possibly due to the fact that they are not being trained effectively.

Although educational programs have been increasing their focus, there continues to be a lack of preparation of providers. It was shown that personal experience was found to be the most helpful when it comes to end-of-life care. Hopefully, programs can find ways to make the educational process more personal and, at the same time, more effective, thereby leading to improved comfort levels among providers and improved satisfaction among patients and caregivers.

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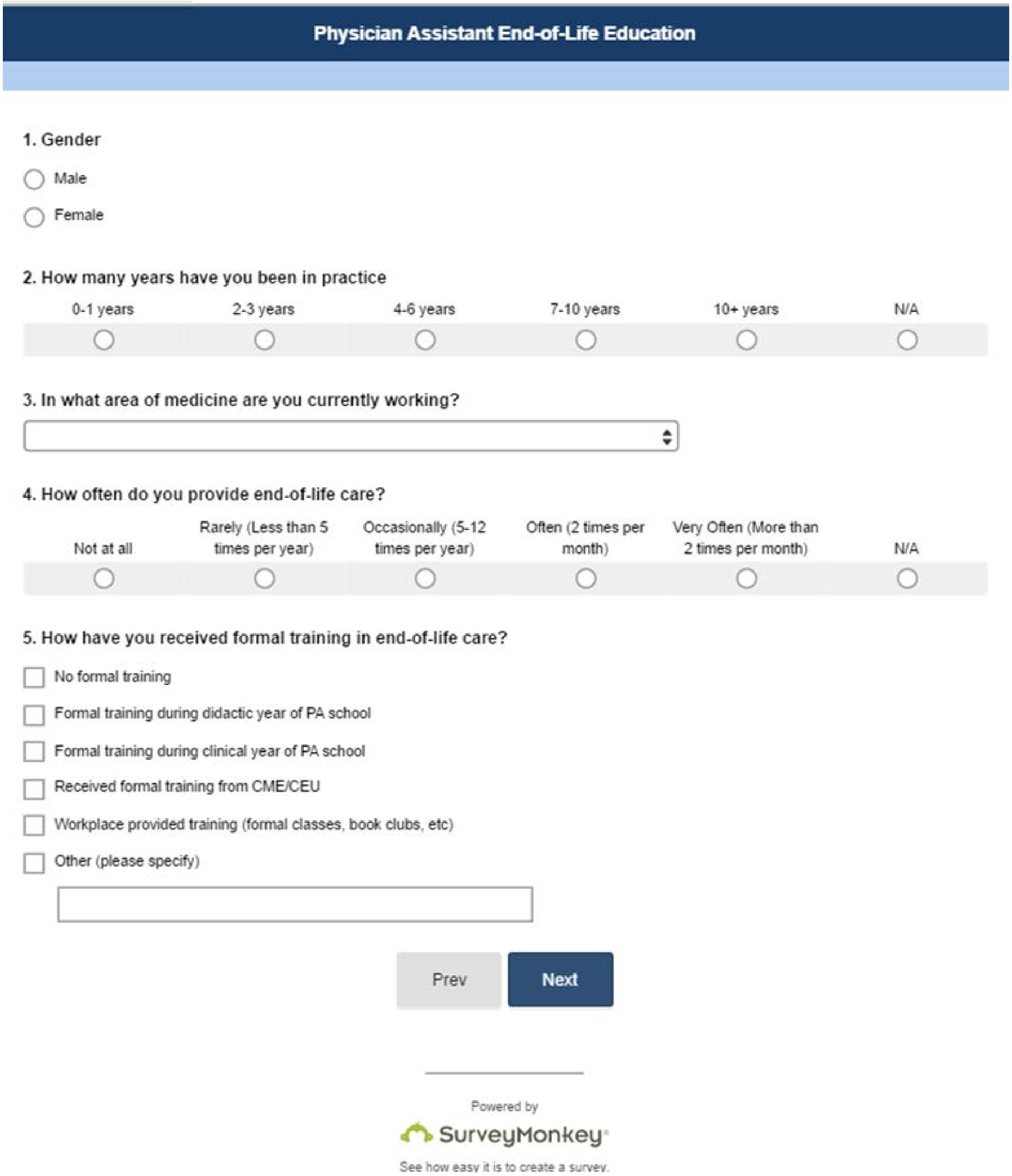
Appendix A

PA Survey



Physician Assistant End-of-Life Education

1. Gender

○ Male

○ Female

2. How many years have you been in practice

0-1 years	2-3 years	4-6 years	7-10 years	10+ years	N/A
○	○	○	○	○	○

3. In what area of medicine are you currently working?

4. How often do you provide end-of-life care?

Not at all	Rarely (Less than 5 times per year)	Occasionally (5-12 times per year)	Often (2 times per month)	Very Often (More than 2 times per month)	N/A
○	○	○	○	○	○

5. How have you received formal training in end-of-life care?

☐ No formal training

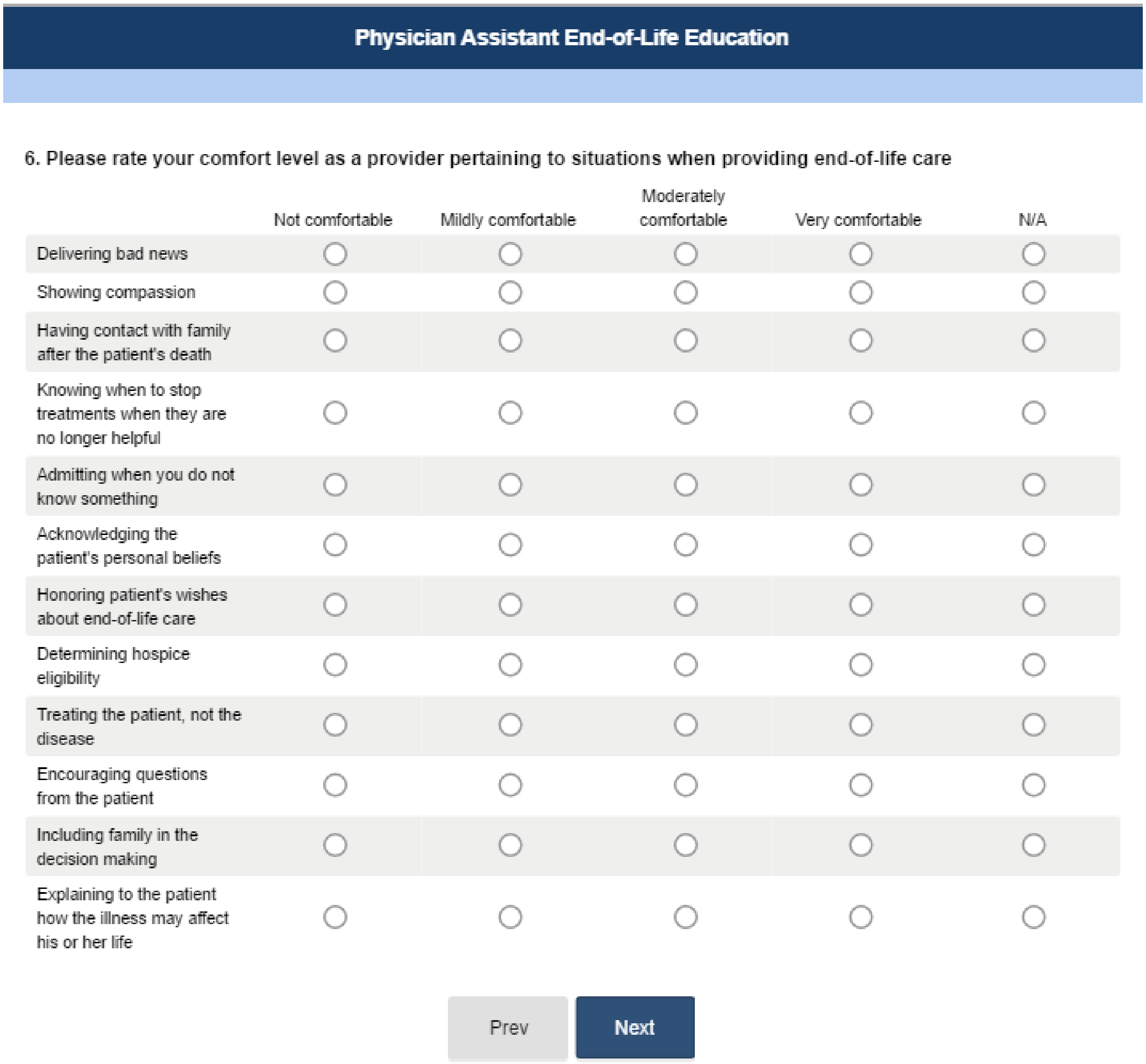
☐ Formal training during didactic year of PA school

☐ Formal training during clinical year of PA school

☐ Received formal training from CME/CEU

☐ Workplace provided training (formal classes, book clubs, etc)

☐ Other (please specify)



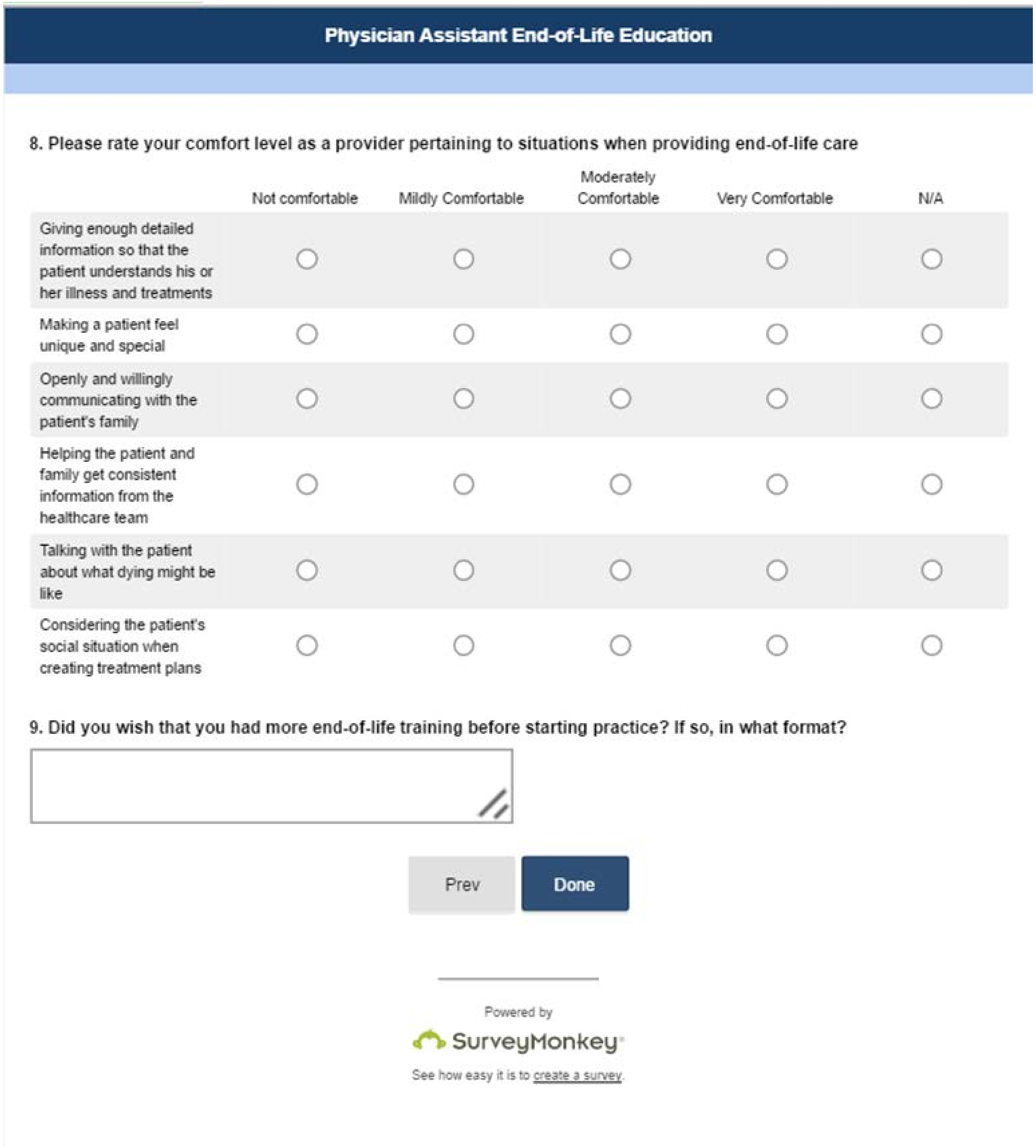
Physician Assistant End-of-Life Education

6. Please rate your comfort level as a provider pertaining to situations when providing end-of-life care

	Not comfortable	Mildly comfortable	Moderately comfortable	Very comfortable	N/A
Delivering bad news	○	○	○	○	○
Showing compassion	○	○	○	○	○
Having contact with family after the patient's death	○	○	○	○	○
Knowing when to stop treatments when they are no longer helpful	○	○	○	○	○
Admitting when you do not know something	○	○	○	○	○
Acknowledging the patient's personal beliefs	○	○	○	○	○
Honoring patient's wishes about end-of-life care	○	○	○	○	○
Determining hospice eligibility	○	○	○	○	○
Treating the patient, not the disease	○	○	○	○	○
Encouraging questions from the patient	○	○	○	○	○
Including family in the decision making	○	○	○	○	○
Explaining to the patient how the illness may affect his or her life	○	○	○	○	○

7. Please rate your comfort level as a provider pertaining to situations when providing end-of-life care

	Not comfortable	Mildly comfortable	Moderately comfortable	Very Comfortable	N/A
Maintaining hope and a positive attitude	○	○	○	○	○
Continuing to be involved with the patient after a referral to hospice	○	○	○	○	○
Being responsive to patient's emotional needs	○	○	○	○	○
Providing treatment options and advice about medical care	○	○	○	○	○
Acknowledging patient's culture, religious or spiritual beliefs	○	○	○	○	○
Acknowledging and treating patient's anxiety and depression	○	○	○	○	○
Making sure there is someone available to help the patient when you are not available	○	○	○	○	○
Taking into account the patient's wishes when treating pain and symptoms	○	○	○	○	○
Overall comfort with people who are dying	○	○	○	○	○
Treating patients and families as your equals	○	○	○	○	○
Knowledge about the care patients need during the dying process	○	○	○	○	○
Helping patients and families understand how to provide symptom and pain control	○	○	○	○	○



Physician Assistant End-of-Life Education

8. Please rate your comfort level as a provider pertaining to situations when providing end-of-life care

	Not comfortable	Mildly Comfortable	Moderately Comfortable	Very Comfortable	N/A
Giving enough detailed information so that the patient understands his or her illness and treatments	○	○	○	○	○
Making a patient feel unique and special	○	○	○	○	○
Openly and willingly communicating with the patient's family	○	○	○	○	○
Helping the patient and family get consistent information from the healthcare team	○	○	○	○	○
Talking with the patient about what dying might be like	○	○	○	○	○
Considering the patient's social situation when creating treatment plans	○	○	○	○	○

9. Did you wish that you had more end-of-life training before starting practice? If so, in what format?

Appendix B

Informed Consent for PA Survey

Informed Consent for PA Survey

You are invited to participate in a research project about PA education on providing end-of-life care. We hope to learn how comfortable practicing PAs feel with providing end-of-life care from the formal training that they receive in PA school or at what point during their career that they begin to feel comfortable. You were selected as a possible participant in this study because of your involvement with the Minnesota Association of Physician Assistants. This research is for our master's thesis for the Bethel University's PA program, and no funding has been obtained for collecting this research.

If you decide to participate, we will ask you questions regarding comfort and topics regarding end-of-life care in your practice. This online survey should take approximately 5-10 minutes to complete and consists of 30 questions.

Any information obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. In any written reports or publications, no one will be identified or identifiable and only aggregate data will be presented.

Your decision whether or not to participate will not affect your future relations with the Minnesota Association of Physician Assistants in any way. If you decide to participate, you are free to discontinue participation at any time without affecting such relationships.

This research project has been approved our research advisor in accordance with Bethel's Levels of Review for Research with Humans. If you have any questions about the research and/or research participants' rights or wish to report a research related injury, please contact Zachary Stutzman, via email at z-stutzman@bethel.edu. If you have any questions regarding your rights as a research subject, please contact the Bethel University Institutional Review Board (IRB) at 651-638-6400.

By completing and returning the survey, you are granting consent to participate in this research.

Appendix C

Reminder Letter

Reminder Letter

Dear MAPA members,

You were sent a survey 10 days ago regarding the preparedness of PAs in providing end-of-life care to patients. The survey will be closing on July 1st, 2016. We would really appreciate if you would take the time to fill out our survey. The survey can be found by clicking on the link below.

https://www.surveymonkey.com/r/NDVDLKW

Thank you for your help,

Julie Graner, Lukas Steffan, Zach Stutzman,
Bethel University Physician Assistant Students

Appendix D

Informed Consent for Program Director Survey

Informed Consent Script for Program Directors

My research group is conducting a survey about end-of-life education in physician assistant programs and I am interested in your experiences as the program director/curriculum director. The purpose of this research is to determine the level of education provided to students during PA school. Your participation will involve one informal interview that will last between fifteen and thirty minutes. This research has no known risks. This research will benefit the academic community as it helps us to understand how PAs are being educated with respect to end-of-life concerns. Neither your program nor your personal information will not be disclosed in any publication that may result from this study. Notes that are taken during the interview will remain confidential and only disclosed with your permission. Your decision to participate will not affect your future relations with Bethel University. If you decide to participate, you are free to discontinue participation at any time without affecting such relationships. Participation is completely voluntary and we can stop the interview at any time. Would it be alright if I recorded our interview? Saying no to recording will have no effect on the interview.

Are you ready to begin the questions?

Appendix E

Program Director Survey

Faculty Survey Questions

1. How is the subject of death and dying first brought up to your students in your program?
2. How do you talk about the role of providers, PAs, MDs, and NPs, when it comes to delivering end-of-life care?
3. What discussions or topics make learning about end-of-life care difficult or easier?
4. What steps can be taken to improve education on end-of-life care in your program?
5. What resources would you require to facilitate further education about end-of-life?
6. Do you think PAs come out of school with a good base of end-of-life education?
7. Do you see end-of-life education as deficient, as a problem?

(Barnard et al., 1999).

Appendix F

Cross Tabulation Tables

Cross Tabulation Tables

	0-1	2-3	4-6	7-10	10+	Total
Family Medicine	**3**	**4**	**5**	**7**	**20**	**39**
Internal Medicine	**2**	**4**	**2**	**0**	**7**	**15**
Oncology	**1**	**0**	**1**	**1**	**0**	**3**
Surgery	**0**	**2**	**2**	**0**	**1**	**5**
Emergency Medicine	**2**	**1**	**4**	**0**	**0**	**7**
Subspecialty	**4**	**4**	**2**	**2**	**9**	**21**
Other	**8**	**6**	**0**	**7**	**8**	**29**
Total	**20**	**21**	**16**	**17**	**45**	**119**

Table 13: Years in Practice x Area of Medicine

	Not at all	<5x/year	5-12x/year	1-2x/month	2+/month	Total
0-1 year	**10**	**4**	**2**	**2**	**2**	**20**
2-3 years	**6**	**6**	**2**	**2**	**5**	**21**
4-6 years	**4**	**7**	**1**	**2**	**2**	**16**
7-10 years	**9**	**4**	**3**	**0**	**1**	**17**
10+ years	**17**	**16**	**11**	**2**	**0**	**46**
Total	**46**	**37**	**19**	**8**	**10**	**120**

***Table 14*:** Years in Practice x Frequency

	Not at all	**<5x/year**	**5-12x/year**	**1-2x/month**	**2+/month**	**Total**
Family Medicine	**15**	**16**	**6**	**1**	**1**	**39**
Internal Medicine	**1**	**2**	**6**	**4**	**2**	**15**
Oncology	**0**	**0**	**0**	**0**	**3**	**3**
Surgery	**1**	**3**	**1**	**0**	**0**	**5**
Emergency Medicine	**2**	**4**	**1**	**0**	**0**	**7**
Subspecialty	**13**	**7**	**0**	**1**	**0**	**21**
Other	**14**	**5**	**4**	**2**	**4**	**29**
Total	**46**	**37**	**19**	**8**	**10**	**120**

Table15: Area of Medicine x Frequency

	No formal	**Didactic**	**Clinical**	**CEU**	**Workplace**	**Other**	**Total**
Family Medicine	**26**	**5**	**3**	**4**	**6**	**0**	**44**
Internal Medicine	**7**	**5**	**4**	**1**	**1**	**1**	**19**
Oncology	**1**	**0**	**1**	**0**	**2**	**1**	**5**
Surgery	**4**	**1**	**0**	**0**	**0**	**0**	**5**
Emergency Medicine	**2**	**5**	**1**	**1**	**0**	**0**	**9**
Subspecialty	**11**	**7**	**4**	**2**	**1**	**1**	**26**
Other	**16**	**8**	**5**	**5**	**3**	**2**	**39**
Total	**67**	**31**	**18**	**13**	**13**	**5**	**147**

Table 16: Area of Medicine x Training Type

	No formal	**Didactic**	**Clinical**	**CEU**	**Workplace**	**Other**	**Total**
0-1	**9**	**10**	**4**	**1**	**1**	**1**	**26**
2-3	**8**	**10**	**4**	**2**	**2**	**0**	**26**
4-6	**9**	**5**	**2**	**1**	**2**	**1**	**20**
7-10	**11**	**1**	**4**	**2**	**6**	**0**	**24**
10+	**30**	**5**	**4**	**7**	**2**	**4**	**52**
Total	**67**	**31**	**18**	**13**	**13**	**6**	**148**

Table 17: Years in Practice x Training Type

	None	**Didactic**	**Clinical**	**CEU**	**Workplace**	**Other**	**Total**
None	**30**	**13**	**3**	**4**	**1**	**2**	**53**
<5/year	**20**	**11**	**8**	**3**	**6**	**1**	**49**
5-12/yr	**10**	**2**	**2**	**4**	**1**	**2**	**21**
1-2/m	**5**	**2**	**1**	**0**	**1**	**0**	**9**
2+/m	**2**	**3**	**4**	**2**	**4**	**1**	**16**
Total	**67**	**31**	**18**	**13**	**13**	**6**	**148**

Table 18: Frequency x Training

Appendix G

ANOVA and Independent t-tests

ANOVA Analysis for Domains

		Sum of Squares	df	Mean Square	F	Sig
Domain 1	**Between**	2.533	4	.633	1.006	.405
	Within	134.091	213	.630		
	Total	136.624	217			
Domain 2	**Between**	1.416	4	.354	.919	.453
	Within	118.655	308	.385		
	Total	120.070	312			
Domain 3	**Between**	5.652	4	1.413	1.883	.116
	Within	128.326	171	.750		
	Total	133.977	175			
Domain 4	**Between**	7.448	4	1.862	2.203	.070
	Within	162.278	192	.845		
	Total	169.726	196			
Domain 5	**Between**	3.084	4	.771	1.508	.200
	Within	156.433	306	.511		
	Total	159.518	310			
Domain 6	**Between**	3.594	4	.898	.933	.445
	Within	273.520	284	.963		
	Total	277.114	288			

Domain 7	**Between**	14.150	4	3.538	3.819	**.005**
	Within	274.162	296	.926		
	Total	288.312	300			
Domain 8	**Between**	3.626	4	.906	1.778	.133
	Within	153.433	301	.510		
	Total	157.059	305			
Domain 9	**Between**	7.992	4	1.998	3.138	**.015**
	Within	182.748	287	.637		
	Total	190.740	291			
Domain 10	**Between**	1.962	4	.491	1.491	.206
	Within	67.138	204	.329		
	Total	69.100	208			
Domain 11	**Between**	1.382	4	.346	.988	.415
	Within	72.078	206	.350		
	Total	73.460	210			
Domain 12	**Between**	1.626	4	.406	.842	.500
	Within	94.593	196	.483		
	Total	96.219	200			

Table 19: ANOVA for years in practice

		Sum of	**df**	**Mean**	**F**	**Sig**

		Squares		**Square**		
Domain 1	**Between**	7.570	7	1.081	1.760	.097
	Within	129.054	210	.615		
	Total	136.624	217			
Domain 2	**Between**	2.179	7	.311	.805	.583
	Within	117.891	305	.387		
	Total	120.070	312			
Domain 3	**Between**	12.730	7	1.819	2.520	**.017**
	Within	121.247	168	.722		
	Total	133.977	175			
Domain 4	**Between**	16.618	7	2.374	2.931	**.006**
	Within	153.107	189	.810		
	Total	169.726	196			
Domain 5	**Between**	3.890	7	.556	1.082	.375
	Within	155.628	303	.514		
	Total	159.518	310			
Domain 6	**Between**	16.579	7	2.368	2.554	**.015**
	Within	260.535	281	.927		
	Total	277.114	288			
Domain 7	**Between**	11.574	7	1.653	1.751	.097
	Within	276.738	293	.944		
	Total	288.312	300			

Domain 8	**Between**	5.179	7	.740	1.452	.184
	Within	151.880	298	.510		
	Total	157.059	305			
Domain 9	**Between**	3.879	7	.554	.842	.553
	Within	186.860	284	.658		
	Total	190.740	291			
Domain 10	**Between**	4.684	7	.669	2.088	**.046**
	Within	64.416	201	.320		
	Total	69.100	208			
Domain 11	**Between**	4.404	7	.629	1.850	.080
	Within	69.055	203	.340		
	Total	73.460	210			
Domain 12	**Between**	7.206	7	1.029	2.232	**.033**
	Within	89.013	193	.461		
	Total	96.219	200			

Table 20: ANOVA for Area of Medicine

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig**
Domain 1	**Between**	5.563	4	1.391	2.260	.064
	Within	131.061	213	.615		
	Total	136.624	217			

Domain 2	**Between**	1.127	4	.282	.729	.572
	Within	118.944	308	.386		
	Total	120.070	312			
Domain 3	**Between**	6.778	4	1.695	2.278	.063
	Within	127.199	171	.744		
	Total	133.977	175			
Domain 4	**Between**	20.436	4	5.109	6.570	**.000**
	Within	149.290	192	.778		
	Total	169.726	196			
Domain 5	**Between**	3.409	4	.852	1.670	.157
	Within	156.109	306	.510		
	Total	159.518	310			
Domain 6	**Between**	12.640	4	3.160	3.393	**.010**
	Within	264.474	284	.931		
	Total	277.114	288			
Domain 7	**Between**	3.817	4	.954	.993	.412
	Within	284.495	296	.961		
	Total	288.312	300			
	Between	2.630	4	.657	1.281	.277

Domain 8	**Within**	154.429	301	.513		
	Total	157.059	305			
Domain 9	**Between**	10.923	4	2.731	4.359	**.002**
	Within	179.816	287	.627		
	Total	190.740	291			
Domain 10	**Between**	2.660	4	.665	2.042	.090
	Within	66.441	204	.326		
	Total	69.100	208			
Domain 11	**Between**	1.253	4	.313	.893	.469
	Within	72.207	206	.351		
	Total	73.460	210			
Domain 12	**Between**	3.165	4	.791	1.667	.159
		93.054	196	.475		
		96.219	200			

Table 21: ANOVA Frequency of End-of-Life care

Independent T-tests and 95% Confidence Intervals for Domains

		N	Mean	Std Dev	SE	95% CI of difference
Domain 1	**N**	98	3.39	.713	.072	**(-.462 - -.047)**
	Y	120	3.13	.840	.077	

Domain 2	**N**	140	3.45	.604	.051	(-.091 - .185)
	Y	173	3.50	.635	.048	
Domain 3	**N**	82	3.05	.815	.090	(-.372 - .146)
	Y	94	2.94	.925	.095	
Domain 4	**N**	87	2.78	.895	.096	(-.415 - .107)
	Y	110	2.63	.956	.091	
Domain 5	**N**	140	3.44	.692	.058	(-.106 - .214)
	Y	171	3.50	.739	.056	
Domain 6	**N**	131	3.11	.950	.083	(-.335 - .119)
	Y	158	3.01	1.006	.080	
Domain 7	**N**	139	2.81	.937	.079	(-.208 - .236)
	Y	162	2.83	1.019	.080	
Domain 8	**N**	140	3.41	.720	.061	(-.131 - .194)
	Y	166	3.45	.718	.056	
Domain 9	**N**	135	3.21	.754	.065	(-.240 - .131)
	Y	157	3.15	.856	.068	
Domain 10	**N**	94	3.50	.600	.062	(-.024 - .294)
	Y	115	3.63	.551	.051	
	N	94	3.55	.598	.062	

Domain 11	**Y**	117	3.60	.588	.054	(-.117 - .207)
Domain 12	**N**	91	3.52	.621	.065	(-.198 - .183)
	Y	110	3.51	.751	.072	

Table 22: Independent T-test for difference of means Formal Training

		N	Mean	Std Dev	SE	95% CI of difference
Domain 1	**Y**	56	3.30	.761	.102	(-.162 - .313)
	N	162	3.23	.806	.063	
Domain 2	**Y**	80	3.41	.630	.070	(-.246 - .075)
	N	233	3.50	.617	.040	
Domain 3	**Y**	45	2.80	.815	.121	(-.540 - .033)
	N	131	3.05	.888	.078	
Domain 4	**Y**	50	2.46	.862	.122	**(-.603 - -.028)**
	N	147	2.78	.942	.078	
Domain 5	**Y**	80	3.30	.753	.084	**(-.422 - -.043)**
	N	231	3.53	.696	.046	
Domain 6	**Y**	72	2.82	1.012	.119	**(-.583 - -.045)**
	N	217	3.13	.960	.065	
Domain 7	**Y**	78	2.63	.995	.113	**(-.517 - -.003)**
	N	223	2.89	.968	.065	

Domain 8	**Y**	79	3.23	.767	.086	**(-.468 - -.081)**
	N	227	3.50	.687	.046	
Domain 9	**Y**	75	2.95	.769	.089	**(-.518 - -.105)**
	N	217	3.26	.810	.055	
Domain 10	**Y**	53	3.40	.631	.087	**(-.431 - -.045)**
	N	156	3.63	.546	.044	
Domain 11	**Y**	53	3.42	.663	.091	**(-.419 - -.016)**
	N	158	3.63	.557	.044	
Domain 12	**Y**	52	3.44	.698	.097	(-.318 - .128)
	N	149	3.54	.693	.057	

Table 23: Independent T-test for difference of means Didactic

		N	**Mean**	**Std Dev**	**SE**	**95% CI of difference**
Domain 1	**Y**	32	3.41	.665	.118	(-.079 - .451)
	N	186	3.22	.812	.060	
Domain 2	**Y**	46	3.37	.610	.090	(-.320 - .070)
	N	267	3.49	.621	.038	
Domain 3	**Y**	26	3.19	.694	.136	(-.073 - .551)
	N	150	2.95	.900	.073	
	Y	30	2.80	.664	.121	

Domain 4	**N**	167	2.68	.971	.075	(-.163 - .409)
Domain 5	**Y**	46	3.41	.617	.091	(-.273 - .133)
	N	265	3.48	.734	.045	
Domain 6	**Y**	45	3.16	.767	.114	(-.143 - .381)
	N	244	3.04	1.016	.065	
Domain 7	**Y**	46	2.91	.865	.0128	(-.174 - .393)
	N	255	2.80	1.000	.063	
Domain 8	**Y**	45	3.29	.757	.113	(-.410 - .075)
	N	261	3.46	.709	.044	
Domain 9	**Y**	44	3.02	.698	.105	(-.418 - .052)
	N	248	3.21	.826	.052	
Domain 10	**Y**	31	3.45	.568	.102	(-.368 - .080)
	N	178	3.60	.577	.043	
Domain 11	**Y**	31	3.42	.564	.101	(-.409 - .037)
	N	180	3.61	.593	.044	
Domain 12	**Y**	31	3.61	.495	.089	(-.091 - .329)
	N	170	3.49	.724	.055	

Table 24: Independent T-test for difference of means Clinical

		N	**Mean**	**Std Dev**	**SE**	**95% CI of difference**
Domain 1	**Y**	22	3.32	.839	.179	(-.308 - .464)
	N	196	3.24	.790	.056	
Domain 2	**Y**	29	3.41	.682	.127	(-.337 - .200)
	N	284	3.48	.615	.036	
Domain 3	**Y**	16	2.75	.775	.194	(-.693 - .168)
	N	160	3.01	.883	.070	
Domain 4	**Y**	16	3.13	.957	.239	(-.056 - .992)
	N	181	2.66	.921	.068	
Domain 5	**Y**	29	3.34	.769	.143	(-.444 - .162)
	N	282	3.49	.712	.042	
Domain 6	**Y**	27	3.22	1.050	.202	(-.246 - .614)
	N	262	3.04	.974	.060	
Domain 7	**Y**	29	2.86	.953	.177	(-.334 - .425)
	N	272	2.82	.985	.060	
Domain 8	**Y**	29	3.52	.688	.128	(-.179 - .369)
	N	277	3.42	.721	.043	
Domain 9	**Y**	27	3.63	.492	.095	**(.281 - .714)**
	N	265	3.13	.822	.050	

Domain 10	**Y**	20	3.40	.754	.0169	(-.553 - .168)
	N	189	3.59	.554	.040	
Domain 11	**Y**	20	3.70	.470	.105	(-.099 - .368)
	N	191	3.57	.602	.044	
Domain 12	**Y**	18	3.50	.618	.146	(-.335 - .308)
	N	183	3.51	.702	.052	

Table 25: Independent T-test for difference of means CEU

		N	**Mean**	**Std Dev**	**SE**	**95% CI of difference**
Domain 1	**Y**	22	3.45	.671	.143	(.086 - .546)
	N	196	3.22	.804	.057	
Domain 2	**Y**	31	3.65	.551	.099	(-.026 - .401)
	N	282	3.46	.626	.037	
Domain 3	**Y**	19	3.32	.671	.154	**(.018 - .715)**
	N	157	2.95	.890	.071	
Domain 4	**Y**	19	3.32	.671	.154	**(.339 - 1.034)**
	N	178	2.63	.931	.070	
Domain 5	**Y**	31	3.68	.475	.085	**(.034 - .421)**
	N	280	3.45	.736	.044	
	Y	29	3.38	.728	.135	

Domain 6	**N**	260	3.02	1.000	.062	**(.060 - .660)**
Domain 7	**Y**	31	3.19	.654	.117	**(.150 - .682)**
	N	270	2.78	1.003	.061	
Domain 8	**Y**	31	3.71	.529	.095	**(.099 - .521)**
	N	275	3.40	.730	.044	
Domain 9	**Y**	30	3.60	.498	.091	**(.261 - .680)**
	N	262	3.13	.825	.051	
Domain 10	**Y**	20	3.60	.503	.112	(-.219 - .276)
	N	189	3.57	.585	.043	
Domain 11	**Y**	21	3.71	.463	.101	(-.074 - .377)
	N	190	3.56	.603	.044	
Domain 12	**Y**	21	3.62	.498	.109	(-.128 - .366)
	N	180	3.50	.713	.053	

Table 26: Independent T-test for difference of means Workplace

		N	**Mean**	**Std Dev**	**SE**	**95% CI of difference**
Domain 1	**Y**	12	3.58	.793	.229	(-.156 - .867)
	N	206	3.23	.791	.055	
Domain 2	**Y**	17	3.59	.507	.123	(-.150 - .387)
	N	296	3.47	.626	.036	

Domain 3	**Y**	10	3.70	.483	.153	**(.393 - 1.116)**
	N	166	2.95	.876	.068	
Domain 4	**Y**	12	3.58	.515	.149	**(.599 - 1.292)**
	N	185	2.64	.923	.068	
Domain 5	**Y**	17	3.71	.470	.114	(-.006 - .500)
	N	294	3.46	.727	.042	
Domain 6	**Y**	18	3.78	.428	.101	**(.531 - 1.010)**
	N	271	3.01	.989	.060	
Domain 7	**Y**	18	3.50	.924	.218	**(.252 - 1.193)**
	N	283	2.78	.969	.058	
Domain 8	**Y**	18	3.83	.383	.090	**(.221 - .633)**
	N	288	3.41	.726	.043	
Domain 9	**Y**	18	3.72	.461	.109	**(.334 - .826)**
	N	274	3.14	.815	.049	
Domain 10	**Y**	12	3.83	.389	.112	**(.018 - .532)**
	N	197	3.56	.583	.042	
Domain 11	**Y**	12	3.92	.289	.083	**(.162 - .556)**
	N	199	3.56	.599	.042	
	Y	11	3.82	.405	.122	

Domain 12	**N**	190	3.49	.703	.051	**(.039 - .607)**

Table 27: Independent T-test for difference of means Other

Independent T-tests and 95% Confidence Intervals for Constructs

	M/F	N	Mean	STD	SE	CI of difference
Communication	**M**	168	3.27	.846	.065	(-.058 - .229)
	F	716	3.19	.865	.032	
Compassion	**M**	250	3.52	.654	.041	(-.040 - .142)
	F	1079	3.47	.680	.021	
Competence	**M**	149	3.01	.962	.079	**(.061 - .282)**
	F	634	2.90	.923	.037	

Table 28: Independent t-test for Gender

ANOVAS for Constructs

		Sum of Squares	df	Mean Square	F	Sig.
Communication	**Between**	8.773	4	2.193	2.986	.018
	Within	651.603	887	.735		
	Total	660.377	891			
Compassion	**Between**	7.014	4	1.754	3.893	**.004**
	Within	602.244	1337	.450		
	Total	609.259	1341			
Competence	**Between**	24.636	4	6.159	7.365	**.000**

	Within	656.498	785	.836		
	Total	681.134	789			

Table 29: ANOVA for Years in Practice

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Communication	**Between**	26.827	7	3.832	5.347	**.000**
	Within	633.550	884	.717		
	Total	660.377	891			
Compassion	**Between**	13.994	7	1.999	4.480	**.000**
	Within	595.265	1334	.446		
	Total	609.259	1341			
Competence	**Between**	18.903	7	2.700	3.189	**.002**
		662.231	782	.847		
		681.134	789			

Table 30: ANOVA for Area of Practice

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Communication	**Between**	**18.241**	**4**	**4.560**	**6.299**	**.000**
	Within	**642.136**	**887**	**.724**		
	Total	**660.377**	**891**			
Compassion	**Between**	**7.277**	**4**	**1.819**	**4.041**	**.003**

	Within	**601.982**	**1337**	**.450**		
	Total	**609.259**	**1341**			
Competence	**Between**	**21.386**	**4**	**5.347**	**6.362**	**.000**
	Within	**659.748**	**785**	**.840**		
	Total	**681.134**	**789**			

Table 31: ANOVA for Frequency of End-of-Life care

Appendix H

Bethel University IRB Approval

June 10, 2016

Lukas, Julie, & Zachary;

As granted by the Bethel University Human Subjects committee as the program director, I write this letter to you in approval of Level 3 Bethel IRB of your project entitled: "End-of-Life Education and Preparedness of Physician Assistants in Minnesota and the Surrounding States." This approval is good for one year from today's date. You may proceed with data collection and analysis. Please let me know if you have any questions.

Sincerely;

Wallace Boeve, EdD, PA-C
Program Director
Physician Assistant Program
Bethel University