IMPACT OF A GERIATRIC AND PALLIATIVE MEDICINE CLERKSHIP ON KNOWLEDGE AND ATTITUDES ABOUT END-OF-LIFE CARE

A Thesis Presented to the

Faculty of the College of Education

University of Houston

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

by

Linh M.T. Nguyen

August 2015

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Abstract

Previous interventions of students and residents suggest that those which employ patient encounters increases attitude towards end-of-life care and performance on a palliative care knowledge examination, but those studies did not include geriatric preceptors. From a population of third-year medical students, the researcher surveyed attitudes and tested knowledge before and after a combined geriatric and palliative clerkship to determine the impact on these outcomes and if there were any differences among the preceptor or the clinical site. After the rotation, students' perceptions of the importance that medical students learn about how to care for dying patients of resident and attending physicians increased from 77.5% to 89.6% ($p < 0.001$) and 87.4% to 92.9% ($p = 0.001$) respectively. More students agreed that physicians have a responsibility to provide bereavement care ($p < 0.001$) and that depression is treatable among patients with terminal illness ($p = 0.017$). More students disagreed that they dread having to tell patients the truth about a terminal prognosis and still maintain hope ($p = 0.003$), that caring for dying patients is depressing ($p < 0.001$), and that they feel guilty after a death ($p < 0.001$). Test scores increased from a mean of 59.8% to 70.4% ($p < 0.001$). There were no differences in attitude or knowledge among the preceptors or clinical sites. This rotation was associated with an increase in attitudes and knowledge regardless of the preceptor or clinical site. Results indicated that palliative educational programs should receive more institutional support to better prepare future physicians.

Keywords: palliative, end-of-life, education attitude, knowledge, clerkship, rotation

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Chapter 1

Introduction

Statement of the Problem

Improvements in the standards of living and advancements in medical care over the last century, have lengthened life expectancy and shifted the major causes of death from infectious etiologies, like pneumonia and tuberculosis (top causes of death in 1900), to more chronic processes, like heart disease and cancer (the top causes of death in 2010) (Jones, Podolsky, & Greene, 2012; Miniño & Murphy, 2012). For the majority of Americans (seven out of ten) who die of a chronic illness, the journey to dying can be long and involved, and clinicians are expected to competently guide patients during this difficult time (Goodman, Esty, Fisher, & Chang, 2011). In the 1990s, the Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment (SUPPORT) revealed that very few physicians studied discussed preferences for end-of-life care with their patients and less than half knew their patient's preferences regarding CPR (Goodman et al., 2011). The SUPPORT study and the Institute of Medicine's 1997 report on the poor quality of end-of-life care in the US brought physician training on end-of-life issues to the forefront (Goodman et al., 2011).

Studies suggest that interventions employing primarily didactic methods such as lectures and group learning to improve medical student and resident knowledge about end-of-life issues are less successful than interventions that incorporate direct clinical experience (Anderson, Williams, Bost, & Barnard, 2008; Claxton, Marks, Buranosky, Rosielle, & Arnold, 2011; DeVita, Arnold, & Barnard, 2003; Fischer, Gozansky, Kutner, Chomiak, & Kramer, 2003; Morrison, Thompson, & Gill, 2012; Porter-Williamson et al., 2004; Schroder, Heyland, Jiang,

Rocker, & Dodek, 2009). While a few studies have examined the impact of how a clinical rotation in palliative medicine impacts medical student knowledge and attitudes about end-of-life care, no study has compared the impact of geriatrics rotation versus a palliative rotation. Because the two specialties often serve the same population of patients and the philosophy of care for the terminally-ill often overlaps between the two medical specialties, it is not clear whether exposure to geriatric medicine alone can impact medical student knowledge and attitudes regarding end-of-life care.

Purpose of the Study

At the University of Texas Health, Medical School in Houston, TX, a geriatric or palliative week-long rotation has been a required third year clerkship since 2007. The purpose of this study is to examine how palliative care knowledge and attitudes among third-year medical students are impacted by this one week exposure to the clinical practice of palliative or geriatric medicine. This exploratory descriptive study aims to answer the following research questions.

Research Questions

1. How does a one-week geriatric and palliative clerkship affect palliative knowledge and attitude toward palliative care in third-year medical students?
2. How do the learning site and preceptor characteristics affect palliative knowledge and attitude of third-year medical students?
3. How well has the educational experience of third-year medical students prepared them to provide end-of-life care?

Significance of the Problem

The University of Texas Health Science Center at Houston (UT Health) Division of Geriatric and Palliative Medicine is comprised of geriatric medicine clinicians, palliative medicine clinicians, and clinicians who are board certified in both geriatric medicine and palliative medicine. This study is unique because third-year medical clerkship students can be assigned to one of these three different types of preceptors. To the researcher's knowledge, no study has examined the association of palliative knowledge and attitudes with the preceptor's practice focus. It is not known if exposure to a geriatric clinician is associated with increases in palliative knowledge and attitudes. This gap in knowledge is of clinical and educational importance given the lack of palliative clinicians as compared to the number of patients needing palliative care and the number of medical students who need training. Increases in palliative knowledge and attitudes with exposure to non-palliative clinicians can support the basis for collaborating with "palliative-friendly" specialties and/or clinicians to meet educational needs.

Furthermore, few medical schools require a third-year clerkship with actual patient experiences instead of simulated patient experiences such as virtual patients or case vignettes. Describing the outcomes of a clinical rotation would help guide medical school educators and administrators by providing an evidence base for palliative curriculum. The feasibility and optimal duration of a third-year clerkship is not known. The results of this study may add to the body of knowledge that third-year rotations regarding feasibility and sustainability. By demonstrating improvement in medical knowledge and attitude toward palliative care, the data and outcomes may be used by other medical schools to support the implementation of mandatory one-week palliative clinical experience. This study of a one-week exposure may be the basis for future studies to explore if students prefer a longer rotation.

Theoretical Framework Concerning the Problem

Four phases of curriculum development. The 4 phases in developing a new curriculum include: 1) needs assessment, 2) curriculum design, 3) implementation, and 4) program evaluation (Ury, 2001). Fortunately, for UT Health, a previous educational grant provided the resources to develop the palliative curriculum through phases 1, 2, and 3. This study attempted to address phase 4, evaluation. More specifically, this study characterized the summative evaluations by measuring the changes in knowledge and attitude of learners (pretest and post-test) through surveys.

Measuring knowledge and attitude as an outcome of the palliative curriculum. The palliative knowledge survey attempted to measure changes in knowledge in the following different palliative domains within the curriculum at the beginning and end of the rotation. While not every survey item can be strictly categorized in a single domain, this study's survey items reflect a theoretical framework for a palliative syllabus proposed by the European Association for Palliative Care (Elsner et al., 2013). See Figure 1.

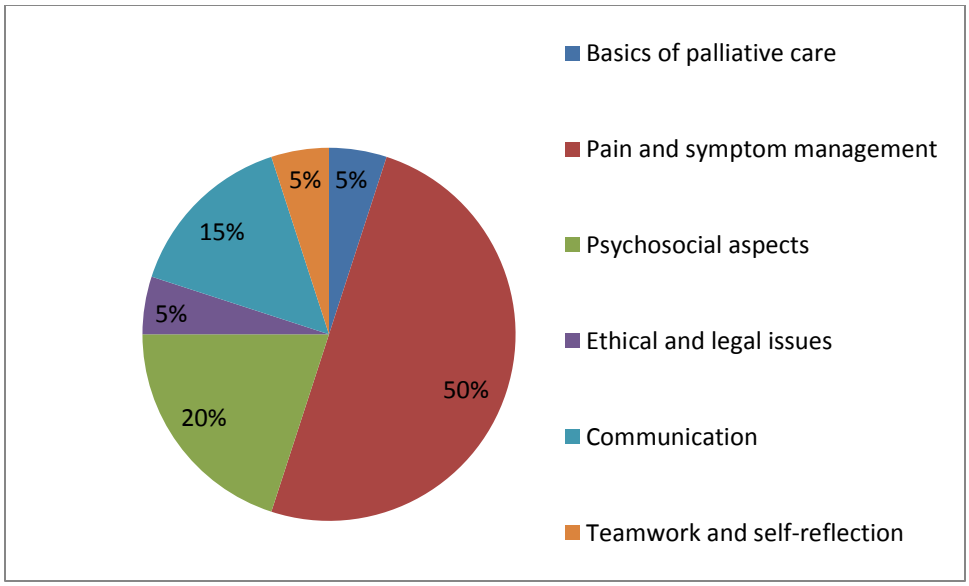

Figure 1. Suggested split of percentages of topics by the European Association for Palliative Care

Definitions of Key Concepts

World Health Organization (WHO) Definition of Palliative Care:

Palliative care is an approach that improves the quality of life of patients and their families facing the problem 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. Palliative care:

- Provides relief from pain and other distressing symptoms;
- Affirms life and regards dying as a normal process;
- Intends neither to hasten or postpone death;
- Integrates the psychological and spiritual aspects of patient care;

- Offers a support system to help the family cope during the patients illness and in their own bereavement counselling, if indicated;
- Will enhance quality of life, and may also positively influence the course of illness;
- Is applicable early in the course of illness, in conjunction with other therapies that are intended to prolong life, such as chemotherapy or radiation therapy, and includes those investigations needed to better understand and manage distressing clinical complications (WHO definition of palliative care.).

Clerkship (according to Merriam-Webster): "a course of clinical medical training in a specialty (as pediatrics, internal medicine, or psychiatry) that usually lasts a minimum of several weeks and takes place during the third or fourth year of medical school" (Merriam-Webster, 2015, n.p.).

Organization of the Thesis

Chapter 2 contains the literature reviews. Chapter 3 discusses the methodology of the study. Chapter 4 presents the results and findings. Finally, chapter 5 discusses the conclusions from the study, limitations, and directions for future research.

Summary

In summary, palliative care is a relatively newer medical specialty that focuses on quality of life of patients with advanced illnesses which is of societal importance. U. S. medical schools are struggling to develop institution-specific curricula to meet these new educational demands.

This study will help fill the gap in knowledge in palliative educational program effectiveness and outcomes and provide direction to improve palliative educational programs.

Chapter 2

Review of the Literature

The purpose of this study was to explore third-year medical students' palliative knowledge and attitudes before and after a one-week required clerkship in geriatric and palliative medicine. Specifically, the investigator sought to understand the relationship between palliative knowledge and attitude with characteristics of the preceptor, clinical sites, and learner characteristics. To conduct this study, it was necessary to complete a critical review of the current literature. This review was continuous and ongoing throughout all stages of the study.

This review explores the literature regarding undergraduate medical education programs in palliative care. The major areas that were critically reviewed were the curricular and instructional approaches and the palliative educational program outcomes. A review of undergraduate medical curriculum in palliative care provides an understanding of the current approaches to educating student doctors and the context and history of curricular solutions to the problem.

This critical reviewed is organized into the following topics:

1. The State of Current Palliative Curriculum
2. Longitudinal Curricular Solutions: a comprehensive medical school approach to palliative care that spans the duration of the entire four years of medical school rather than a shorter-duration rotation and/or didactic session.
3. Third-year Required Didactic and/or Clinical Experience: a single or small series of clinical rotations and/or didactic sessions without longitudinal follow up

4. Incorporation of Palliative Content into Existing Courses: exposing learners to palliative concepts within the context of an existing course or clerkship. For instance, learners receiving a palliative didactic within an existing family medicine or internal medicine clerkship rotation.
5. Strengths, weaknesses, and gaps in the literature
6. Operational definition of variables
7. Summary

The State of Current Palliative Curriculum

Since 2000, education on end-of-life care has been a requirement from the Liaison Committee on Medical Education (LCME) for medical schools to receive accreditation (Radwany et al., 2011). How each medical school is fulfilling these requirements varies, and there are no standards guiding the development of curricula at each school. Despite the growing attention towards palliative education, the vast majority of both medical students and medical schools reported no required end-of-life or palliative training. In a sample of 15,500 fourth-year medical students from 62 of the 124 accredited 4-year United States medical schools, 18% had taken a course in end-of-life care and ten percent had a formal rotation in palliative medicine which is often an elective (Sullivan, Lakoma, & Block, 2003). Furthermore, a survey of medical schools revealed that only 19% had a required palliative care rotation, and 30% had a required palliative care course (Van Aalst-Cohen, Riggs, & Byock, 2008). Thus, it is no surprise that students felt inadequately prepared to address patients' thoughts and fears about dying, manage their own feelings about patients' deaths, or help families during bereavement (Sullivan et al., 2003).

In addition, student satisfaction with palliative curriculum is lacking in both quantity and quality. At one medical school, approximately half of the students reported the quantity of education on end-of-life care in the curriculum as "moderate," and 35% rated it as "good." Half of the students in the same study rated the quality of the content as "moderate" and 47% rated it as "good." The authors concluded more attention should be paid to the need for more quantity and quality in the palliative curriculum (Hesselink, Pasman, Van Der Wal, Soethout, & Onwuteaka-Philipsen, 2010).

Longitudinal Curricular Solutions

The timing of palliative education in the curriculum is another important aspect during curriculum development. Fortunately, some medical schools have both strong political and financial support to implement a comprehensive longitudinal palliative curriculum as opposed to fragmented and disjointed palliative rotations or didactic without follow-up over time. Some schools have required palliative courses during third-year (Morrison et al., 2012) while other schools have taken the longitudinal approach spanning the entire duration of the medical students' experience. For example, the Northeastern Ohio Universities of Colleges of Medicine and Pharmacy have implemented a four-year integrated curriculum in palliative care. The two cornerstone pieces were a mandatory hospice experience and a case-based small group discussion prior to graduation (Radwany et al., 2011).

Required Third-year Didactic and/or Clinical experience

One study observed when at least one patient experience was included in a rotation the learners showed increased palliative knowledge and attitudes (Morrison et al., 2012). This

suggests that all palliative curricula should include real patient encounters not just didactics, case vignettes, or virtual patients. This supports the findings of a previous study by Steen et al (1999) where investigators implemented a five-day combined didactic and clinical rotation in hospice and palliative care for third-year medical students. The program was accepted by students as a valuable learning experience and saw an observable change in attitudes toward death and dying. Authors concluded this was a feasible learning solution that could be applied to other health care curricula (Steen et al., 1999).

Incorporation of Palliative Content into Existing Courses

Researchers have tried various ways to incorporate palliative content into existing courses. Tan, Ross and Duerksen (2013) incorporated palliative content into an existing family medicine clerkship by using a virtual online patient case in palliative care. This study found that there was an increase in student reported self-assessment of comfort level of patient management. Students reported the activity as beneficial but noted that the interface was sometimes awkward to navigate (Tan, Ross, & Duerksen, 2013).

Unlike Tan et al., Von Gunten et al. (2012) incorporated 32 hours of palliative didactic and experiential curriculum into a 12-week internal medicine clerkship. This clerkship included a four-week ambulatory block, and one day per week was devoted to palliative didactics, home hospice visits and inpatient hospice care. Von Gunten et al. found improvements in knowledge and self-reported competence and decreases in self-reported concern. Retesting during fourth year observed sustained effects in confidence and allaying concerns but a six percent fall in knowledge (Von Gunten et al., 2012).

Strengths, Weaknesses, and Gaps in the Literature

The current literature about the effects of a palliative curriculum supports specific positive program outcomes such as improvements in knowledge and attitudes and high degrees of learner satisfaction. The body of literature strongly supports continuing efforts in further curriculum development and implementation. The feasibility studies suggest the programs are viable and sustainable within the individual institutions.

However, the weaknesses include a lack of adequate program description and accompanying educational materials such as syllabi and recommended resources. If one were to try to replicate a study it would be difficult because the educational programs and interventions (or methods) are not well described. It is not known what educational materials were utilized, and there is no standardized curriculum, although some organizations such as the EAPC have recommend core palliative content (Elsner et al., 2013). Another major weakness in the literature is the lack of methods for measuring palliative skills. While it is easier to administer a questionnaire or test on knowledge and attitudes, it is difficult to measure objective behavior such competent opioid selection or responding with empathy to a patient in emotional distress.

One gap in the literature is a lack of a comprehensive review article outlining the current palliative curriculum and outcomes measured in undergraduate medical education. Furthermore, there has not been a national survey of any palliative programs or program outcomes since 1998 (Block & Sullivan, 1998). Past studies of this issue have not examined longitudinal outcomes of palliative educational programs. For instance, most of the studies describe the intervention and its feasibility, but there are few follow up studies to describe the programs' development over time.

The Proposed Study's Contribution to the Literature

This study contributes to the body of knowledge since it examined the impact of a one-week geriatric and palliative medicine rotation on palliative knowledge and attitudes of third-year medical students. This study is unique because was based on a compulsory rotation at an institution that utilizes both geriatric and palliative clinicians and included actual patient experiences rather than simulated encounters. The study also explored the relationship between learner characteristics such as demographics, previous experience and baseline palliative knowledge and attitude. In addition, the study explored the differences between rotation clinical sites and preceptor's focus whether geriatric, palliative or both.

Summary

The major areas that were critically reviewed in this chapter were the curricular and instructional approaches and the palliative educational program outcomes. Many different types of curricula and instruction were designed to meet the needs of the patients and learners including a comprehensive longitudinal palliative curricula that spans the entire duration of medical school, short clinical rotations and/or didactic without a longitudinal component or follow up, and incorporating palliative content into existing educational activities. The cornerstone to most of these programs involved direct patient care. The palliative educational program outcomes measured were mainly knowledge, attitude, and other learner reported outcomes such as satisfaction with the course and self-reported confidence. Despite these new curricula and instruction, learners reported dissatisfaction with the overall quality and quantity in the palliative curriculum and feeling ill prepared to care for seriously ill patients.

Researchers know relatively little about why students tend to gain palliative knowledge and improve their attitudes after an educational intervention. Some students may experience a larger or smaller change depending on the preceptor, the clinical site, or individual learner characteristics. Researchers also need to understand the factors associated with baseline palliative knowledge and attitude. Therefore, this investigation of third-year medical students may help us better understand the needs of our students. The results of this study may aid in developing and delivering the best palliative curriculum possible to benefit patients with serious illness.

Chapter 3

Methodology

Chapter 3 is organized into the following topics. First, the research questions are presented. Second, definitions of variables are explained and described. Third, the research design including a description of the participants, the intervention, data collection and analyses is described, and, finally, a summary concludes chapter 3.

Research Questions

1. How does a one-week geriatric and palliative clerkship affect palliative knowledge and attitude toward palliative care in third-year medical students?
2. How do the learning site and preceptor characteristics affect palliative knowledge and attitude?
3. How well has medical students' education prepared them to provide end-of-life care?

Variables

Dependent variables. There were two dependent variables used in this study: palliative knowledge and palliative attitudes.

1. **Palliative knowledge** is defined as performance on a multiple choice test developed by Weissman. The concepts tested include pain management, pharmacology, and pharmacotherapy (Mullan, Weissman, Ambuel, & von Gunten, 2002; D. E. Weissman et al., 2001; D. E. Weissman et al., 2007).

2. **Palliative attitude** is defined as the learner or study participant's responses to questions which were adapted from a telephone survey conducted to assess attitudes about end of life care among medical students, trainees, and faculty (Block & Sullivan, 1998).

Independent variables. There were two independent variables used in this study: the geriatric and palliative clerkship rotation preceptor's clinical focus and the clinical site. The geriatric and palliative clerkship rotation is defined as a required one-week rotation at a large urban medical school in the Southwest region of the United States.

1. **Preceptor's clinical focus** is defined as the main type of clinical practice of the preceptor: geriatric medicine, palliative medicine, or mixed.
2. **Clinical site is** defined by the primary location where patient encounters occurred including: geriatric inpatient or outpatient, geriatric house calls or nursing facilities, or palliative inpatient or outpatient.

The learner's previous experience may have been a mediator variable to their baseline palliative knowledge and attitude. The study attempted to explain this relationship. Differences in baseline palliative attitude and knowledge may be explained by previous positive or negative palliative experiences. The geriatric and palliative clerkship was an independent variable and selected to study to determine if it affected or modified post-clerkship rotation palliative knowledge and attitude.

Research Design

Participants. Third-year medical students at UT Health, Medical School at Houston, are required to take either a one-week geriatrics rotation or a one-week palliative rotation.

Clerkships at UT Health are conducted from July 1st to June 27th every year, and the timing of the one-week rotation varies depending on the individual schedule of the student. Throughout the academic year, there are 24 geriatric/palliative rotation weeks. For this study, there were approximately 240 medical students in the third-year class (class of 2015). As part of a continuing evaluation of the quality of the geriatrics rotation, students were required to take a pre and posttest assessing their knowledge of geriatric medicine. The students completed these surveys and tests through an established and well used electronic portal (Blackboard).

***Intervention*.** In order to evaluate attitudes and knowledge about palliative medicine, an additional pre and post rotation survey was administered to all consenting students during their one week rotation in either geriatrics or palliative medicine. This project took advantage of the existing IT infrastructure developed for the geriatrics rotation evaluation by adding a separate survey for palliative knowledge/attitudes. The survey and pre-test was made available to students three days before the start of their rotation (Friday 12am to Sunday 11:59pm), and the post-test survey was available for three days following the end of their rotation (Friday 6pm to Monday 6pm).

Survey tools for assessing attitudes and knowledge about palliative care were obtained with permission of the authors for use in this project. The combined study tool consisted of 70 items (See Appendix A). Survey questions concerning attitudes about end-of-life care were adapted (with permission) from a telephone survey conducted to assess attitudes about end-of-life care among medical students, trainees and faculty (Block & Sullivan, 1998) (See Appendix B). The survey questions regarding palliative care knowledge were taken from the National Residency End of Life Education Project (D. Weissman; D. E. Weissman et al., 2001; D. E. Weissman et al., 2007) (See Appendix C).

***Data Collection Procedures*.** The study participants consisted of the population of third-year medical students who rotated through either geriatrics and/or palliative medicine from July 1st, 2013 to June 27th, 2014. The data used in this study was archival data collected from a study protocol which was previously granted institutional review board exemption. The survey tool quantified student's clinical experiences since nearly every student had a unique schedule and may have been exposed to the rotations used in this study with or without having done other clerkships. These differences in clerkship exposure were accounted for upon final analysis.

***Data Analysis Procedures*.** Frequency data for demographic characteristics (gender, age, and ethnicity) was calculated. Comparisons of pre and posttest performance of each individual student were performed using the dependent group t-tests to evaluate whether students' individual knowledge and attitudes changed following the week-long clerkship. Data among students in the geriatric group and the palliative group was pooled, respectively, and averages were calculated for both performance on the knowledge test and attitudes, then compared using dependent *t*-test. The independent variables of the preceptor's clinical focus (i.e. geriatric, palliative, or mixed) and the clinical site (i.e. geriatric or palliative, inpatient or outpatient) were assessed for their impact on post-rotation knowledge examination scores and attitudes toward end-of-life care using mixed ANOVA.

Summary

In summary, the study participants consisted of the entire population of third-year medical students who were required to complete a one-week geriatric and palliative clinical rotation. Students were assigned to preceptors with a clinical focus in geriatric, palliative, or mixed. Archival data included pre- and post-rotation knowledge examinations and pre- and post-

surveys on attitudes toward palliative care. Baseline characteristics of the population were collected including their perceptions on how well their medical education had prepared them for providing end-of-life care. The data set was then analyzed for statistically significant changes in performance on pre- and post-knowledge and attitudes. Finally, the subgroups were stratified by the preceptor's clinical focus (geriatric, palliative, or mixed) and the clinical site (geriatric or palliative, inpatient or outpatient) and analyzed for differences in performance on the end-of-life knowledge examination and attitudes toward palliative care.

Chapter 4

Discussion of Results

There is a lack of palliative physicians in the workforce to meet the curricular demands for quality palliative clinical education for all medical students. Furthermore, relatively little is known regarding the impact of a required third-year medical clerkship in geriatric and palliative medicine on attitudes towards palliative care and palliative knowledge. A few studies have examined the impact of a clinical palliative rotation on medical student knowledge and attitudes towards end-of-life patients. However, no study has compared the impact of a primarily geriatric, palliative, or mixed clinical rotation on palliative knowledge and attitudes of medical students. If medical students' increased performance on a palliative knowledge examination and demonstrated improved attitudes towards end-of-life patients regardless of their preceptor's clinical focus, these findings would support engaging non-palliative clinicians in providing quality undergraduate medical education in palliative and end-of-life care.

The optimal duration of a clinical rotation including a third-year clerkship rotation is not known. Because the geriatric and palliative clerkship is one-week in duration, it was necessary to examine if such a short rotation could impact medical students' palliative knowledge and attitudes towards end-of-life patients. Retrospective data from a large urban medical school was analyzed for differences in pre-rotation and post-rotation scores in palliative attitude and knowledge. Data were also collected regarding baseline learner characteristics and how well their medical education had prepared them for providing end-of-life care.

Results

Demographics of participants and characteristics of the geriatric and palliative rotation. Because participation in the study was optional not all students enrolled in the required third-year clerkship completed every assessment. Table 1 describes characteristics of the population of third-year medical students. Religious affiliation was assessed because students' spiritual and religious background may affect their attitudes towards patients at end-of-life.

Table 1

Student Demographics and Baseline Characteristics

Characteristic	n = 61
Gender	
Male	30 (49.2%)
Female	31 (50.8%)
Age (in years)	
Mean, y ± SD	25 ± 1.5
Median	25
Mode	24
Range	23 - 31
Ethnicity	
Caucasian	43 (70.4%)
White Hispanic or Latino	6 (9.8%)
African American	4 (6.6%)
Asian	4 (6.6%)
Other	4 (6.6%)
Religious affiliation	
Christian (non-denominational)	16 (26.2%)
None	15 (24.6%)
Catholic	12 (19.7%)
Protestant	10 (16.4%)
Mormon	3 (4.9%)
Muslim	2 (3.3%)
Other	2 (3.3%)
Jewish	1 (1.6%)
How important are religious or spiritual beliefs to your actions?	
Very important	23 (37.7%)
Somewhat important	15 (24.6%)
A little important	12 (19.7%)
Not important at all	11 (18%)
Intended residency training program	
Undecided	11 (18%)
Orthopedics	6 (9.8%)
Pediatrics	6 (9.8%)
Emergency Medicine	5 (8.2%)
Obstetrics & Gynecology	5 (8.2%)
Narrowed to 2 different specialties	4 (6.6%)
Internal Medicine	3 (4.9%)
Neurosurgery	3 (4.9%)
Dermatology	2 (3.3%)
Family Medicine	2 (3.3%)
Oral & Maxillofacial Surgery	2 (3.3%)

Surgery	2 (3.3%)
Combined Internal Medicine & Pediatrics	1 (1.6%)
Neurology	1 (1.6%)
Ophthalmology	1 (1.6%)
Otolaryngology	1 (1.6%)
Physical Medicine & Rehabilitation	1 (1.6%)
Plastic Surgery	1 (1.6%)
Primary care, not specified	1 (1.6%)
Psychiatry	1 (1.6%)
Radiology	1 (1.6%)
Urology	1 (1.6%)
Advanced degree beyond Bachelor's	3 (4.9%)

Table 2 describes the students' previous personal experience with end-of-life. Learners reported if they had experienced the death of a close friend or family members. Additionally, learners responded if their personal experience affected their practice of medicine.

Table 2

Previous Exposure to End-of-Life

Personal experience with end-of-life	n = 191
Experienced death of a close friend or family member	141
Influence of experience on how you would practice medicine	
Positive influence	118
Negative influence	1
No influence	20
Did not respond	2

Significant observations included that only approximately one quarter of the students (61 out of 223 students enrolled in the clerkship) chose to complete the anonymous demographics survey. A minority of these respondents (18%) reported that their religious or spiritual beliefs

were not important at all to their actions. Eighteen percent of the respondents were undecided about their intended residency training programs. A majority of respondents (73.8%) had a personal experience with end-of-life and only one respondent rated the experience as negative.

Table 3 and 4 describe the required rotations and elective rotations the students completed prior to the geriatric and palliative rotations respectively. Students may have completed multiple required rotations prior to the geriatric and palliative medicine clerkship rotation. These questions were asked to characterize the extent of the students' clinical experiences.

Table 3

Required Rotations Completed By Students

Rotation	n = 177
Family Medicine	115 (60.2%)
Pediatrics	100 (52.4%)
Internal Medicine	99 (51.8%)
Surgery	95 (49.7%)
Psychiatry	93 (48.7%)
Obstetrics & Gynecology	91 (47.6%)
Neurology	58 (30.4%)

Table 4

Elective Rotations Completed By Students

Elective Rotation	n = 90
Dermatology	9
Neurosurgery	8
Anesthesia	8
Cardiology	7
Plastic Surgery	7
Orthopedics	6
Emergency Medicine	6
Pathology	6
Urology	6
Ambulatory	4
Endocrinology	4
Otolaryngology	3
Radiology	3
Pediatric Cardiology	3
Ophthalmology	2
Scholarly Concentration	2
Global Health	1
Rheumatology	1
Internal Medicine	1
Research	1
Nephrology	1
Physical Medicine & Rehabilitation	1

Neurology was the least reported clerkship completed prior to the geriatric and palliative rotation. That is explained by the sequence in which students progress through their rotation schedules. Most students complete neurology after geriatric and palliative. In addition, the elective rotations reported were quite varied among surgical and medical specialties.

In Table 5 students were asked about the number of patients they had cared for in the last 2 or more days of life (i.e. the patient was at end-of-life but not imminently dying). Students could have answered that they cared for zero patients at the end-of-life. If the student had taken care of zero patients at the end-of-life they were asked if they would like the opportunity. Finally, students were asked about their satisfaction with caring for patients at the end-of-life as

compared to other clinical activities.

Table 5

Exposure to Patients at End-of-Life

Student responses	n = 187
Number of patients the student cared for during last 2 or more days of life, mean n ± SD	2.6 ± 2.8
If you have not cared for a patient at the end of life, would you like the opportunity?	
Yes	43
No	15
Did not respond	1
Compared to other clinical activities, how satisfying do you find caring for patients at end-of-life	
More satisfying	33
Less satisfying	42
No difference	113

Fifty-nine students had cared for zero patients at the end-of-life. Most of these students would have liked the opportunity; however, a significant minority (15 students) did not want the opportunity to care for a patient at the end-of life. Some respondents found end-of-life care satisfying (33 students) while some found it less satisfying (42 students) as compared to other clinical activities, and the majority (113 students) reported no difference.

Table 6 describes the student's assigned preceptor's main clinical focus and the clinical site that the student reported where they spent the most time. Table 7 describes the students' clinical sites: geriatric or palliative, inpatient or outpatient.

Table 6

Geriatric and Palliative Medicine Clerkship Preceptor

Preceptor's clinical focus	n = 176
Palliative	103 (58.5%)
Geriatric	62 (35.2%)
Mixed	11 (6.3%)

Table 7

Geriatric and Palliative Medicine Clerkship Clinical Site

Clinical site	n = 189
Palliative inpatient	116 (61.4%)
Geriatric inpatient	30 (15.9%)
Geriatric outpatient	20 (10.6%)
Geriatric house calls	15 (7.9%)
Palliative outpatient	3 (1.6%)
Nursing facility	3 (1.6%)
Other	2 (1%)

Students with a geriatric preceptor (35.2%) made up a large minority of the respondents. The most common clinical site was palliative inpatient and geriatric inpatient. Outpatient sites account for 22.6% of the clinical experiences.

Students' view of how well their medical education has prepared them to provide end-of-life care. Participants were asked to rate their perception of how well their medical school had prepared them to provide end-of-life care on a 4-point Likert scale from "not well at all" to "very well." They were also asked about general aspects of providing end-of-life care to patients (See Table 8). Finally, they were asked about specific topics regarding palliative care (See Table

9).

Table 8

Students' View of How Well Their Medical Education Has Prepared Them to Provide End-of-Life Care

Aspect of Care	Rating of Preparation n = 191		
	Very Well	Moderately Well	Not Very Well/Not Well at All
Manage the pain of a dying patient	11 (5.8%)	96 (50.3%)	80 (41.9%)
Discuss end-of-life care decisions with a patient	20 (10.5%)	122 (63.9%)	46 (24.1%)
Talk to a patient about his or her thoughts and fears about dying	10 (5.2%)	100 (52.4%)	76 (40%)
Address cultural issues related to a patient's end-of-life care	12 (6.3%)	100 (52.4%)	75 (39.3%)
Address spiritual issues related to a patient's end-of-life care	10 (5.2%)	78 (40.8%)	99 (51.8%)
Help family members during bereavement	11 (5.8%)	93 (48.7%)	85 (44.5%)
Manage their own feelings about a patient's dying and death	114 (59.7%)	58 (30.4%)	19 (9.9%)

More than half of the respondents (51.8%) reported that their medical education had "not

very well" or "not well at all" prepared them to address spiritual issues. In contrast, only 24.1% reported that their medical education "had not very" or "not well at all" prepared them to discuss end-of-life care decisions. This suggests that students were most dissatisfied with their medical education regarding spiritual aspects of care and least dissatisfied with their preparedness to discuss end-of-life care decisions with patients.

Table 9

Students' Perceptions of End-of-Life Care

Topics Taught: How to…	n = 191
Recognize tolerance to opioids	122 (63.9%)
Treat neuropathic versus somatic pain	127 (66.5%)
Tell a patient that she or he is dying	106 (55.5%)
Assess and manage depression at the end of life	109 (57.1%)
Help patients and their families with reconciliation and saying goodbye	51 (26.7%)
Discuss treatment withdrawal with patients or families	99 (51.8%)
Respond to a patient's request for physician-assisted suicide	96 (50.3%)
Determine when to refer patients to hospice	123 (64.4%)
Teach families to provide home care for a dying patient	54 (28.3%)

Students reported being taught how to treat neuropathic pain versus somatic pain (66.5%), when to refer patients to hospice (64.4%), and how to recognize tolerance to opioids (63.9%) the most. Meanwhile, students reported specific topics such as how to help patients and families with reconciliation and saying goodbye (26.7%) and teaching families to provide home care for a dying patient (28.3%) the least. These scores would likely be higher at the end of the third year or fourth year of medical school when the students have had more clinical experience.

Impact of the geriatric and palliative clerkship on post-rotation palliative attitudes. Students were asked how important they perceived palliative care was to them based upon their own personal interest or career goals. Then, they were asked about their perception of the importance of palliative care to the resident and attending physicians (See Table 10). Finally, the students were asked about their attitude towards end-of-life care of patients and families (See Table 11). These surveys were administered both before and after the clerkship rotation to examine if there was an impact on students' perceptions towards the importance of palliative care based on their interests or career goals, students' perceptions of the importance of teaching palliative care to medical students by resident and attending physicians, and students' attitude towards end-of-life care of patients and families.

Table 10

Attitudes Toward Palliative Based on Student's Interest or Career Goals

	n = 182		
	Pre-Rotation	Post-Rotation	*p*-value
Given your career goals, how important is it to learn how to care for dying patients?	173 (95%)	171 (94%)	0.103
How important do you think it is to the residents that medical students learn how to care for dying patients?	141 (77.5%)	163 (89.6%)	<0.001*
How important do you think it is to attendings that medical students learn how to provide care for dying patients?	159 (87.4%)	169 (92.9%)	0.001*

Results indicate respondents who rated importance as "very important" or "moderately important." Almost all of the students (95%) reported that palliative care was important to their career goals. However, there was a statistically significant difference in their perception of the importance of teaching palliative care to medical students from resident and attending physicians after the clerkship rotation. This could have been attributed to the fact that the students were required to complete this clinical rotation and were exposed to resident and attending physicians who were caring for dying patients.

Table 11

Attitudes about End-of-Life Care

	n = 182		
	Pre-Rotation	Post-Rotation	*p*-value
Physicians have a responsibility to provide bereavement care to the patient's family members after death.			
Completely agree	65 (35.7%)	83 (45.6%)	<0.001*
Generally agree	91 (50%)	83 (45.6%)	
Generally disagree	25 (13.7%)	16 (8.8%)	
Completely disagree	1 (0.5%)	0 (0%)	
I dread having to tell patients the truth about a terminal prognosis and still maintain hope.			
Completely agree	14 (7.7%)	9 (4.9%)	0.003*
Generally agree	59 (32.4%)	51 (28%)	
Generally disagree	90 (48.5%)	91 (50%)	
Completely disagree	19 (10.4%)	31 (17%)	
Caring for dying patients is depressing.			
Completely agree	18 (9.9%)	11 (6%)	<0.001*
Generally agree	91 (50%)	72 (39.6%)	
Generally disagree	65 (35.7%)	79 (43.3%)	
Completely disagree	8 (4.4%)	19 (10.4%)	
It is possible to tell patients the truth about a terminal diagnosis and still maintain hope.			
Completely agree	62 (34.1%)	71 (39%)	0.052
Generally agree	102 (56%)	100 (54.9%)	
Generally disagree	17 (9.3%)	10 (5.5%)	
Completely disagree	1 (0.5%)	1 (0.5%)	
Depression is treatable among patients with terminal illnesses.			
Completely agree	57 (31.3%)	71 (39%)	0.017*
Generally agree	111 (61%)	100 (54.9%)	
Generally disagree	14 (7.7%)	11 (6%)	
Completely disagree	0 (0%)	0 (0%)	
Physicians have a responsibility to help patients at the end of life prepare for death.			
Completely agree	122 (67%)	124 (68.1%)	0.893
Generally agree	57 (31.3%)	54 (29.7%)	
Generally disagree	3 (1.6%)	4 (2.2%)	
Completely disagree	0 (0%)	0 (0%)	
Psychological suffering can be as severe as physical suffering.			
Completely agree	153 (84.1%)	153 (84.1%)	0.866
Generally agree	28 (15.4%)	29 (15.9%)	
Generally disagree	1 (0.5%)	0 (0%)	
Completely disagree	0 (0%)	0 (0%)	
I feel guilty after a death.			
Completely agree	10 (5.5%)	6 (3.3%)	<0.001*
Generally agree	28 (15.4%)	33 (18.1%)	

Generally disagree	33 (18.1%)	66 (36.3%)
Completely disagree	13 (7.1%)	18 (9.9%)

Results indicate respondents who "generally" or "completely" agreed with the statement. Statistically significant improvements were observed in several areas in the survey of attitudes. After the rotation there was more agreement with positive statements. More students agreed that physicians have a responsibility to provide bereavement care ($p < 0.001$). In addition, more students agreed that depression is treatable among patients with terminal illness ($p = 0.017$).

After the rotation improvements in attitude were also observed in students' disagreement with the negative statements. More students disagreed that they dread having to tell patients the truth about a terminal prognosis and still maintain hope ($p = 0.003$). In addition, more students disagreed that caring for dying patients is depressing ($p < 0.001$). Finally, more students disagreed that they feel guilty after a death ($p < 0.001$).

The vast majority of students agreed that psychological suffering can be as severe as physical suffering. Only one student disagreed with this statement prior to the clerkship rotation. Agreement with this statement remained stable after the rotation. Because there was such a high degree of agreement with this statement there was probably not much room for improvement.

Impact of the geriatric and palliative clerkship on post-rotation knowledge. Students completed a palliative care knowledge examination before and after the rotation. The knowledge examination was a multiple choice examination. The test was originally developed for internal and family medicine resident physicians-in-training. We adapted the knowledge test and kept items that were most appropriate to the third-year medical student and omitted items that were more appropriate for resident physicians (See Table 12).

Table 12

Pre- and Post-Rotation Palliative Knowledge Examination

	n = 192	
	Pre-Rotation	Post-Rotation
Mean	14.3 (59.8%)	16.9 (70.4%)* $p < 0.001$
Median	14 (58.3%)	17 (70.8%)
Mode	15 (62.5%)	16 (66.7%)
Standard deviation	3.8	3.7
Range	4 – 24	5 - 24

There was a statistically significant difference between pre-rotation and post-rotation palliative care knowledge examination scores ($p < 0.001$). Sub-group analyses observed no differences for any of the items in the attitudes towards end-of-life survey nor mean scores on the palliative care knowledge examination when accounting for the preceptor's clinical focus (geriatric, palliative, or mixed) or the clinical site (geriatric or palliative, inpatient or outpatient). These findings support the hypothesis that students' attitude and knowledge improved despite the differences in the characteristics of their assigned preceptor or clinical site. Moreover, these findings suggest non-palliative clinicians such as geriatricians can deliver equivalent clinical experiences within a palliative curriculum.

Summary of Research Results

To summarize, the main purpose of this study was to characterize the impact of a one-week geriatric and palliative clerkship rotation on third-year medical students' attitudes towards end-of-life care and performance on a palliative care knowledge examination. Almost all of the students (95%) reported that palliative care was important to their career goals. When asked about their perceptions of the importance of teaching palliative care to medical students after the rotation, there was a statistically significant difference for perceptions of resident ($p < 0.001$) and attending ($p = 0.001$) physicians.

Statistically significant improvements were observed in several areas in the survey of attitudes towards end-of-life care of patients and families. There was more agreement with positive statements and less agreement with negative statements. More students agreed that physicians have a responsibility to provide bereavement care ($p < 0.001$) and that depression is treatable among patients with terminal illness ($p = 0.017$). More students disagreed that they dread having to tell patients the truth about a terminal prognosis and still maintain hope ($p = 0.003$), that caring for dying patients is depressing ($p < 0.001$), and that they feel guilt after a death ($p < 0.001$).

On the palliative care knowledge examination mean test scores improved from 59.8% to 70.4% ($p < 0.001$). Sub-group analyses observed no differences for any of the items in the attitudes towards end-of-life survey nor mean scores on the palliative care knowledge examination when accounting for the preceptor's clinical focus (geriatric, palliative, or mixed) or the clinical site (geriatric or palliative, inpatient or outpatient). In conclusion, the findings suggest that a one-week clerkship can positively impact third-year medical students' attitudes towards end-of-life care and performance on a palliative care knowledge examination. The

findings from the sub-group analyses also suggest that non-palliative clinicians such as geriatricians can help meet the needs for palliative education.

Chapter 5

Discussion and Conclusion

Overview of the Problem and the Methodological Approach

The goal of this study was to determine if a one-week required clinical rotation for third-year medical students impacted attitudes towards end-of-life care and performance on a palliative care knowledge examination. Archival data were obtained from surveys and tests that were previously administered. Differences in the preceptor's clinical focus and the clinical site were also analyzed to determine if these variables affected these post-rotation outcomes.

Discussion of the Results of the Research

In a large population of third-year medical students who were required to complete a one-week clinical rotation in geriatric and palliative medicine, statistically significant improvements were observed in attitudes towards end-of-life care and performance on a palliative care knowledge examination regardless of the preceptor's clinical focus or the clinical site. These findings are consistent with previous studies of medical students and residents which observed that educational interventions incorporating direct clinical experience were more successful in improving knowledge about end-of-life issues than those that employed primarily didactic methods such as lectures and group learning (Anderson et al., 2008; Claxton et al., 2011; DeVita et al., 2003; Fischer et al., 2003; Morrison et al., 2012; Porter-Williamson et al., 2004; Schroder et al., 2009). The researcher attempted to quantify the amount of clinical exposure to dying patients in this population of third-year medical students. In this study, the population of third-year students on average cared for 2.6 ± 2.8 patients at the end-of-life over the past year which is

consistent with the previous finding 6.2 ± 8.7 of a sample of the population of fourth-year students in the United States (Sullivan et al., 2003). However, in this study, more students dreaded having to tell patients the truth about a terminal prognosis and still maintain hope (56% in this study versus 27% as observed by Sullivan et al., 2003).

Nearly all students in this study perceived that caring for dying patients was important given their career goals; this was consistent with Sullivan et. al. However, in this study, post-rotation perceptions towards resident physicians improved. Prior to the rotation only 28.6% of respondents rated the importance to resident physicians of teaching medical student how to care for dying patients as "very important." After the rotation, this increased to 41.8% of respondents rating the same statement as "very important." Unlike Sullivan et al, the third-year medical students had better baseline perceptions towards attending physicians which improved after the rotation from 36.8% pre-rotation to 54.4% post-rotation in this study versus 28% observed in a sample of fourth-year medical students in the United States. Findings in this study on specific end-of-life care topics taught to students are consistent with those reported by Sullivan et al. However, the researcher in this study observed that a higher percentage of students reported being taught how to respond to a patient's request for physician-assisted suicide (50% in our study versus 25% in the previous study) (Sullivan et al., 2003).

The current study clarifies the previous findings and extends them to a large population of third-year medical students who will likely be representative of the workforce who will care for dying patients seen in clinical practice. Because of the size of the study population and the repeated measures design of testing knowledge and surveying attitudes both before and after the educational intervention, the researcher was able to examine the impact of the one-week geriatric

and palliative clerkship rotation on third-year medical students' attitude and knowledge. The large population made it possible to detect statistically significant changes in the study outcomes.

The major strength of this study is that it demonstrated that a relatively short clerkship can positively impact students' attitude toward end-of-life care and performance on a palliative care knowledge examination. Furthermore, there were no differences according to the preceptor's clinical focus or the clinical site; this implies that both palliative and non-palliative clinicians can collaborate to meet the curricular demands for quality palliative education for all medical students. Although the participants were limited to third-year medical students, the results suggest that a palliative curriculum which employs direct clinical care of patients can impact students' knowledge and attitude regardless of the level of education (undergraduate or graduate medical education) and whether or not the experience is required or optional. These findings will facilitate the development of high-quality, palliative undergraduate curriculum.

Limitations

There were several limitations of this study. The attitude survey and knowledge examination used have not been validated, but the authors of the instruments ensured content validity of the instruments through previous studies. The study subjects were a population of students who were volunteers for the study. Not all students completed every study assessment. Students who did not complete both the pre- and post-rotation attitude survey and the knowledge examination were excluded from analysis. There could have been a bias towards positive responses from students who were motivated to complete the assessments as compared to those who chose not to respond. It is not known whether these improvements in attitude and knowledge are permanent.

Implications

Implications for Future Research. The results of this study imply non-palliative clinicians, such as geriatricians, can fill the shortage of clinicians who can deliver palliative education, but this must be tested further in both undergraduate and graduate medical education programs. Further study is warranted to develop validated tools to measure outcomes of palliative educational interventions. Adaptations of this study to other learning environments such as nursing and other allied health professionals who also care for palliative and end-of-life patients could result in improvements in attitudes and knowledge. This study attempted to characterize religious affiliation and whether or not religion or spirituality was important to their actions. Future research is needed to examine the differences in demographic background as well as religiosity and spirituality among physicians and patients and if these factors correlate with clinical outcomes and patient satisfaction.

Implications for Practice. The findings in this study support the premise that required teaching of palliative content for undergraduates should be integrated throughout the curriculum. The skills acquired on the geriatric and palliative medicine clerkship rotation will help students perform better in the patient and family care areas of communication, psychosocial and spiritual care, and ethical decision making. These findings are important for the justification of required palliative clinical rotations and point to the need for funding and support of both palliative clinical and palliative educational programs which would result in better trained physicians who are well-equipped to care for this population who previously reported poor quality of care in the SUPPORT study as stated in Chapter 1 (Goodman et al., 2011).

Implications for Education and Training. The improvements in students' perceptions of the importance to resident and attending physicians of teaching medical students how to care for dying patients suggest that formal curriculum in palliative care could reduce the unintended consequences of the hidden curriculum which can undermine end-of-life care education in the United States. Clinical competencies are well defined (Schaefer et al., 2014), and model curricula exist (Elsner et al., 2013). Furthermore, the findings in this study affirmed the learners' needs to develop the expertise in end-of-life care. The next step is for academic medical center leaders to take action in reforming the current outdated curriculum which historically has not prepared physicians to care for patients facing end-of-life issues.

Conclusions

In conclusion, the results of this study indicate that a one-week required clinical rotation in geriatric and palliative medicine for third-year medical students resulted in improved attitudes towards-of-life care as well as improved perceptions of the importance of teaching how to care for a dying patient by resident and attending physicians. Findings suggest that a rotation which employs a clinical experience with direct patient care results in increased performance on a palliative care knowledge examination. Furthermore, there were no differences observed in post-rotation attitude or knowledge among the different clinical sites or among the preceptor's clinical focus: geriatric, palliative, or mixed. These findings suggest that non-palliative clinicians can help meet curricular demands for palliative education.

Recommendations

Because clinical competencies in palliative medicine have been well-defined one logical step is to develop validated measures for knowledge, attitudes, and skills. Medical students should demonstrate mastery of these competencies and meet defined milestones at designated intervals during their training. However, educators must first define the desired outcome (i.e. observable behavior) then work to develop a validated tool to measure competence.

Paradoxically, while much attention has been paid to inadequately trained physicians who are ill-prepared by medical schools to deliver high-quality end-of-life care, the Association of American Medical Colleges (AAMC) has launched a new initiative to address just 13 clinical competencies expected of graduating medical students (Association of American Medical Colleges, 2014). Ten out of 70 institutions were selected to serve as pilot cohorts to test the implementation of the 13 so-called "core entrustable professional activities" or EPA's. As medical schools continue to develop curricula and instruments to assess competency of core clinical activities, palliative educators should implement best practices based lessons learned from the AAMC initiative and apply those practices to develop improved palliative curricula. Conversely, palliative clinicians can augment the core EPA curriculum because of the palliative emphasis on impeccable assessment, effective communication, and the interprofessional team approach. In conclusion, this new emphasis on assessing 13 core professional activities along with a formal palliative curriculum seem to be complementary approaches to educating well-round physicians who are well-prepared to take care of patients at any stage in life.

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APPENDIX A

Attitude toward End-of-Life Care and Palliative Care Knowledge Examination

DEMOGRAPHICS

1. How do you self-identify?

    1) Male

    2) Female

    3) Transgender: male to female

    4) Transgender: female to male

    5) Other: _____

2. In what year were you born?_____

3. Are you Hispanic or Latino?

    1) YES

    2) NO

4. (In addition to being Hispanic or Latino), what is your race? Select one or more of the following:

    1) White

    2) Black or African American

3) Asian

4) American Indian or Alaska Native, or

5) Native Hawaiian or Other Pacific Islander, or

6) Other: _____

5. What is your religious background, if any, is it…..?

1) Protestant

2) Catholic

3) Jewish

4) Muslim

5) Hindu

6) Other:_____

7) None

6. How important are religious or spiritual beliefs to your actions, would you say they are…

1) very important

2) somewhat important

3) a little important, or

4) not important at all

7. What is your most likely specialty? _____

8. Are you in any particular program or tract?

1) MD/PhD

2) Military_____

3) Other: specify_____

9. Do you have any advanced degrees (beyond a Bachelor's degree)?

1) YES, specify:_____

2) NO

10. What is your graduation year? _____

EXPERIENCE

1. Are you taking the Palliative Medicine rotation or the Geriatric Medicine rotation?

    1) Palliative Medicine

    2) Geriatric Medicine

    3) Mixed Palliative and Geriatric Medicine

1b. Please select where the rotation is primarily taking/has taken place:

    1) Geriatric inpatient

    2) Geriatric outpatient

    3) House calls

    4) Palliative care inpatient

    5) Palliative care outpatient

    6) Hospice

    7) Nursing home

    6) Other: _____

2. Which rotations have you already had?

    1) INTM

    2) SURG

    3) PED

    4) NEUR

    5) FAMD

6) OBGY

7) PSYC

8) ELECT → If selected: which one?_____

3. Thinking about your pre-clinical classroom instruction, on a scale of 0-10, where 0 is no teaching and 10 is a lot of teaching, what number would you assign to the amount of teaching you've had about ....

1) sepsis?

2) end of life care?

3) lupus?

4. Now think about the education you have received in your clerkships, including conferences and one-on-one teaching. On a scale of 0-10, where 0 is no teaching and 10 is a lot of teaching, what number would you assign to the amount of teaching you've had that addressed…

1) managing a patient with sepsis?

2) managing a patient at the end of life?

3) managing a patient with lupus?

5. During your clerkships, have you observed a resident or attending do what you thought was a very good job caring for a patient at the end of life?

1) YES
2) NO (SKIP to 7)

6. About how many residents or attendings have you observed doing a very good job with end-of-life care?

_____ # OF RESIDENTS AND ATTENDINGS

7. During your clerkships, have you observed a resident or attending do what you thought was a poor job caring for a patient at the end-of-life?

1) YES
2) NO (SKIP to 9)

8. About how many residents or attendings have you observed doing a poor job with end-of-life care?

_____# OF RESIDENTS AND ATTENDINGS

9. During your clinical clerkships, have you had any contact with clinicians who specialize in palliative care?

1) YES

2) NO

10. During your clinical clerkships, have you ever observed a resident or attending perform a lumbar puncture on a patient?

1) YES

2) NO

11. Have you ever performed a lumbar puncture on a patient yourself?

1) YES

2) NO (SKIP to 13)

12. Were you ever given feedback from a resident or attending about the specific strengths or weakness of your performance doing the lumbar puncture?

1) YES

2) NO

13. During your clinical clerkships, have you ever observed a resident or attending tell a patient about the existence or recurrence of a life-threatening illness?

1) YES

2) NO (SKIP to 15)

14. Have you ever observed this being done well?

1) YES

2) NO

15. Have you ever told a patient about the existence or recurrence of a life-threatening illness?

1) YES

2) NO (SKIP to 17)

16. Were you ever given feedback from a resident or attending about the specific strengths or weaknesses of this discussion?

1) YES

2) NO

17. During your clinical clerkships, have you ever observed a resident or attending talk with a patient with a life-threatening disease about the patient's wishes and values for care at the end of life?

1) YES
2) NO (SKIP to 19)

18. Have you ever observed this being done well?

1) YES
2) NO

19. Have you ever had a discussion like that with a patient?

1) YES
2) NO (SKIP to 21)

20. Were you ever given feedback from a resident or attending about the specific strengths or weaknesses of this discussion?

1) YES
2) NO

21. During your clinical clerkships, have you ever been asked by a resident or attending to participate in caring for a dying patient in a manner that was against your conscience or best judgment?

1) YES

2) NO (SKIP to 23)

22. About how many times has this happened?

_____ # TIMES

22a. [for 20 from each group]

In a few words, can you give me one example of a time when this happened?

23. During your clinical clerkships, about how many codes or resuscitation efforts that ended in death have you been present for?

_____ # CODES

if ZERO (SKIP to 24)

23a. (IF ONLY ONE CODE): thinking about that code you observed, how disturbing was this for you, was it...

1) very disturbing
2) moderately disturbing
3) only a little disturbing, or
4) not disturbing at all?

(IF 2 OR MORE CODES): Thinking about the first few codes you observed, how disturbing were these for you, were they...

1) very disturbing
2) moderately disturbing
3) only a little disturbing, or
4) not disturbing at all?

23b. (IF ONLY ONE CODE) Thinking about that code you observed, did a resident or attending talk with you about your feelings about this experience?

1) YES
2) NO

(IF 2 OR MORE CODES) Thinking about the first few codes you observed, did a resident or attending ever talk with you about your feelings about these experiences?

1) YES
2) NO

24. About how many patients have you helped care for during the last 2 or more days of their lives?

_____ NUMBER

[ ] NONE

24a. IF NONE: "Would you have liked an opportunity to work with a patient at the end of life?"

1) YES
2) NO

25. Of these _____(from 24), how many were cared for by the residents and attendings in a way you would want for yourself or a family member at the end of life?

_____ NUMBER

26. Compared to your other clinical activities, how satisfying do you find caring for patients at the end of life—is it ...

1) more satisfying,
2) less satisfying, or is there
3) no difference?

27. How well have your medical school courses and clerkships prepared you.. - very well, moderately well, not very well, or not well at all?

a. ... to manage the pain of patient at the end of life?

b. ... to discuss end-of-life care decisions with a patient?

c. ... to talk with a patient about his or her thoughts and fears about dying?

d. ... to address cultural issues related to a patient's end of life care?

e. ... to address spiritual issues related to a patient's end of life care?

f. ... to help family members during bereavement?

g. ... to manage their own feelings about a patient's dying and death?

28. Thinking again only about your medical school coursework and clerkships, have you been explicitly taught (YES/NO)

a. ... how to recognize tolerance to pain medication?

b. ... how to treat neuropathic versus somatic or visceral pain?

c. … how to tell a patient that he or she is dying?

d. ... how to assess and manage depression in patients at the end of life?

e. ... how to help patients and their families and friends with reconciliation and saying goodbye?

f. ... how to discuss treatment withdrawal with patients or families?

g. ... how to respond to a patient's request for physician-assisted suicide?

h. ... how to decide when to refer patients to hospice?

i. …how to teach families to provide home care for a dying patient?

29. Have you ever experienced the death of a close friend of family member?

1) YES

2) NO (if no, go to next section)

30. How do you think the experience will influence how you practice medicine - will it have a positive influence, a negative influence, or will it have no influence at all?

1) POSITIVE

2) NEGATIVE

3) NO INFLUENCE

ATTITUDES

1. Given your own personal interests or career goals, how important is it for you to learn about how to provide care for dying patients - very important, moderately important, not very important, or not important at all?

1) VERY IMPORTANT
2) MODERATELY IMPORTANT
3) NOT VERY IMPORTANT
4) NOT IMPORTANT AT ALL

2. In general, how important do you think it is to the residents you've worked with that students still in medical school learn about how to provide care for dying patients - very important, moderately important, not very important, or not important at all?

1) VERY IMPORTANT
2) MODERATELY IMPORTANT
3) NOT VERY IMPORTANT
4) NOT IMPORTANT AT ALL

3. In general, how important do you think it is to attendings that students still in medical school learn about how to provide care for dying patients?

1) VERY IMPORTANT
2) MODERATELY IMPORTANT
3) NOT VERY IMPORTANT
4) NOT IMPORTANT AT ALL

4. For each of the following statements about end of life care, please tell me how much you agree or disagree. Do you completely agree, generally agree, generally disagree, or completely disagree?

a. Physicians have a responsibility to provide bereavement care to the patient's family members after death.

b. I dread having to deal with the emotional distress of family members of a patient at the end of life.

c. Caring for dying patients is depressing.

d. It is possible to tell patients the truth about a terminal prognosis and still maintain hope.

e. Depression is treatable among patients with terminal illnesses.

f. Physicians have a responsibility to help patients at the end of life prepare for death.

g. (If you've worked with a patient who has died) I feel guilty after a death.

h. Psychological suffering can be as severe as physical suffering.

KNOWLEDGE

A 72 y/o man with lung cancer and bone metastases has increasingly severe pain over the Left hip. The pain began 6-8 weeks ago and was initially controlled with acetaminophen/oxycodone tablets (Percocet), using 4-6 tablets/day. Over the past two weeks the pain has worsened; he now takes 12 tablets per day with only partial pain relief. The pain is constant, aching and well localized; there is no referred pain. (questions 1-6)

1. Increasing pain in this patient most likely represents:

1) new onset depression
2) opioid addiction
3) opioid tolerance
4) worsening metastatic cancer

2. This man's pain is best described as:

1) neuropathic pain
2) somatic pain
3) vascular pain
4) visceral pain

3. When would you expect a patient to report the maximal analgesic effect after taking a dose of acetaminophen/oxycodone (Percocet):

1) 30--45 minutes

2) 60--90 minutes
3) 120-150 minutes
4) 180-210 minutes

4. The most appropriate next step in drug therapy for this patient would be to discontinue Percocet, and start:

1) oral hydrocodone (e.g. Vicodin, Lortab)
2) oral hydromorphone (Dilaudid)
3) oral long-acting morphine (e.g. MS Contin, Oramorph SR)
4) oral meperidine (Demerol)

5. The single most appropriate adjuvant analgesic for this patient is:

1) amitriptyline (Elavil)
2) gabapentin (Neurontin)
3) ibuprofen (Motrin)
4) lorazepam (Ativan)

6. For this patient, choose the single most appropriate first drug to prescribe to prevent constipation:

1) docusate (Colace)
2) bisacodyl (Dulcolax)
3) lactulose (Chronulac)

4) senna concentrate (Senokot) with/or without docusate (Colace)

A 27 y/o woman with AIDS notes burning pain along the bottom of both feet. The pain has been present for 4 months and is getting worse. There is often a numbing sensation; the pain limits her ability to walk. She recently began taking acetaminophen with codeine, 2 tabs q4H. She says the medicine provides no relief and it makes her feel sleepy. (questions 7-8)

7. This woman's pain is best be described as:

1) neuropathic pain
2) somatic pain
3) vascular pain
4) visceral pain

8. The most appropriate next step in drug therapy for this patient would be to prescribe:

1) amitriptyline (Elavil)
2) ibuprofen (e.g. Motrin)
3) long-acting opioid (e.g. MS Contin, or fentanyl patch (Duragesic))
4) lorazepam (Ativan)

A 54 y/o woman is hospitalized for an exacerbation of rheumatoid arthritis. She has chronic mid and low back pain from corticosteroid-induced compression fractures of the spine. You prescribe a long-acting oral morphine preparation (e.g. MS Contin) and short-acting oral morphine (e.g. MSIR) for breakthrough pain. (questions 9-13)

9. The patient asks you how often she can take the short-acting oral morphine for pain. Your best response would be to say, "as often as:

    1) every 2 hours"
    2) every 4 hours"
    3) every 6 hours"
    4) every 8 hours"

10. Following the first dose of morphine the patient develops nausea. Which one of the following statements concerning nausea while taking opioids is true:

    1) nausea to opioids is due to bowel distention and stimulation of the vagus nerve
    2) nausea to opioids is usually accompanied with itching
    3) nausea to opioids represents a drug allergy
    4) nausea to opioids resolves in most patients within 7 days

11. The first night after this patient starts morphine the nurse calls you to report that her respiratory rate has dropped to 6-8 breaths/min. Your advice is to:

    1) administer 0.2 mg naloxone (1/2 amp of Narcan)
    2) administer 0.4 mg naloxone (1 amp of Narcan)
    3) assess level of consciousness
    4) assess level of pupillary response

12. On the third hospital day a decision is made to discontinue the long-acting morphine and begin using a fentanyl (Duragesic) patch. Therapeutic analgesic levels should not be expected after the first application of a fentanyl patch until:

    1) 2-6 hours
    2) 7-12 hours
    3) 13-24 hours
    4) 25-36 hours

13. Compared to morphine, which one of the following opioids more frequently results in clinically significant respiratory depression:

    1) hydrocodone (e.g. Vicodin or Lortab)
    2) hydromorphone (Dilaudid)
    3) methadone (Dolophine)
    4) oxycodone (e.g. Percocet)

A 63 y/o woman is hospitalized with advanced peripheral vascular disease and gangrene of several toes. She has had chronic pain in her feet, maintained with good pain control on an outpatient regimen of long-acting oral morphine 180 mg q 12 and rare use of oral hydromorphone for breakthrough pain. The patient needs to be NPO for a surgical procedure. (questions 14-16)

14. When converting from oral morphine to intravenous morphine, at an equianalgesic dose, the most appropriate dose conversion is:

    1) 3 mg oral = 9 mg intravenous
    2) 3 mg oral = 3 mg intravenous
    3) 3 mg oral = 1 mg intravenous
    4) 3 mg oral = 0.3 mg intravenous

15. In converting IV morphine to an equianalgesic dose of IV hydromorphone (Dilaudid), the most appropriate dose conversion would be:

    1) 1 mg morphine = 4 mg hydromorphone
    2) 1 mg morphine = 1 mg hydromorphone
    3) 1 mg morphine = 0.50 mg hydromorphone
    4) 1 mg morphine = 0.25 mg hydromorphone

16. On the second post-op day, the patient is using the same morphine infusion rate as in Question 14. but the IV line has clotted. The patient's nurse suggests changing the IV infusion to a subcutaneous (SQ) morphine infusion. The most appropriate dose conversion would be:

    1) 1.0 mg IV = 0.5 mg SQ
    2) 1.0 mg IV = 1.0 mg SQ
    3) 1.0 mg IV = 2.0 mg SQ
    4) 1.0 mg IV = 4.0 mg SQ

A 24 y/o man is hospitalized for sickle cell crisis. At home he uses ibuprofen as needed and hydrocodone/acetaminophen (e.g. Vicodin) for episodic pain. Current analgesic orders are: meperidine (Demerol) 75 mg and hydroxyzine (Vistaril) 25 mg IV q 3 h as needed for severe pain. On the third hospital day he continues to note severe pain and is requesting pain medications every two hours. The nurses feel that he increases his appearance of pain (moaning) whenever they enter the room. (questions 17-18)

17. Which one of the following interventions is not appropriate

1) change meperidine to intravenous morphine
2) decrease the meperidine dosing interval to q2h
3) prescribe heating pad to areas of severe pain
4) teach relaxation and guided imagery

18. What single feature of this patient's current and past history would be most indicative of drug addiction (psychological dependence):

1) an increasing need for the drug over time
2) complaint of pain exceeding that expected for a given medical problem
3) development of a withdrawal syndrome when the drug is stopped
4) evidence of adverse life consequences from drug use

A 67 y/o woman with pancreatic cancer metastatic to liver comes to your clinic together with her husband. Over the past four weeks she has lost her appetite and experienced steady weight loss. She spends >75% of the day in bed or lying on a couch because of

fatigue. Her oncologist has indicated that there is no role for further chemotherapy.

(questions 19-24)

19. Outside the examination room the patient's husband stops you and says, "if you have more bad news, please do not tell my wife—she will fall to pieces". How should you manage the husband's request to limit "bad news"?

    1) ask the husband if family/friends/clergy might be better at transmitting bad news
    2) ask the husband if he understands the principle of 'patient autonomy'
    3) ask the husband to define the type of information he feels you can present
    4) ask the husband to tell you more about his concerns

20. The single best predictive factor in determining prognosis in patients with metastatic cancer is:

    1) functional ability
    2) number of metastatic lesions
    3) serum albumin
    4) severity of pain

21. The patient asks you: "so how much time do you think I have?" After further discussion with the patient and her husband you confirm that they want to talk about her prognosis. The best approach is to tell them that:

    1) on average patients with her condition live for about six-nine months
    2) only God can determine how long someone has to live

3) you believe her time is short, only a few weeks to a few months

4) you really can't tell how much time she has left

22. The patient asks you, "Is there anything I can take to improve my appetite?" Which of the following drugs has been shown to improve appetite in advanced cancer patients:

1) conjugated estrogen (e.g. Premarin)

2) haloperidol (Haldol)

3) lorazepam (Ativan)

4) megesterol acetate (Megace)

23. As you talk to the patient, you decide this would be a good time to discuss referral for home hospice care. Under the Medicare Hospice Benefit, which one of the following admission criteria is not required:

1) a physician-of-record is identified

2) DNR (no code) status

3) expected prognosis of 6 months or less

4) the approach is limited to a palliative, symptom-oriented approach

24. The husband asks about hospice support services. As part of the Medicare Hospice Benefit which of the following is not provided:

1) bereavement program for surviving families

2) night-time custodial care

3) payment for all medications related to the terminal illness
4) skilled nursing visits

A 74 y/o anuric, end-stage renal failure patient has been receiving hemodialysis three-times per week for seven years. She is considering stopping dialysis as it is increasingly a burden due to infections, vascular access problems and fatigue. (questions 25-27)

25. The patient wants to know how long she would likely survive if she stops dialysis. The best response would be to say:

1) "about 2-3 days"
2) "about one week"
3) "only God can determine how long someone has to live"
4) "there is no way to tell for sure"

26. The patient tells you she would like to be at home when she dies. Her son asks about intravenous fluids—"will we need intravenous fluids at home?" Which one of the following statements about intravenous (IV) hydration in the last week of life is true:

1) maintaining IV hydration will improve pain management
2) maintaining IV hydration will prevent dry mouth
3) stopping IV hydration will lead to painful muscle cramps
4) stopping IV hydration will lessen dyspnea associated with renal failure

27. Four days after going home a visiting nurse calls you and says the patient was awake most the night, is very fidgety, and keeps trying to get out of bed. Her speech is garbled, she is only oriented to person. She is afebrile and has no focal neurologic signs. Which one of the following statements about treating this symptom complex (terminal delirium) is true:

    1) family members should leave the room to help decrease the agitation
    2) paradoxical worsening of this condition may occur after administration of a minor tranquilizer (e.g. Ativan or Valium)
    3) placing the patient in a dark room will help decrease sensory input and reduce the agitation
    4) the drug treatment of choice is an anti-cholinergic medication

A 40 y/o man is in the outpatient clinic with increasing dyspnea. He was diagnosed HIV positive 12 years ago and now has skin and pulmonary Kaposi sarcoma (KS). The patient stopped taking anti-retroviral medications 9 months ago because of intolerable side effects. On exam he has a respiratory rate of 20-24; chest x-ray shows multiple pulmonary metastases. Following the exam, the patient says "let's just get this over with, put me to sleep and let me die". (questions 28-30)

28. Which one of the following statements about depression at end-of-life is true:

    1) Clinical depression is a normal stage of the dying process
    2) Depression associated with HIV is more difficult to treat than in cancer patients
    3) Feelings of hopelessness/worthlessness are indicators of a clinical depression

4) The degree of appetite and sleep disturbance is predictive of response to anti-depressant medication

29. Which one of the following statements, that concern patients with a terminally illness, is closest to the definition of "physician assisted suicide":

1) discontinuing intravenous fluid administration in a patient who can no longer take oral medication
2) writing a prescription for a lethal dose of a medication that the patient can use at the time of their choice
3) raising the dose of intravenous morphine with the intent of depressing respiration to the point of death
4) removing a respirator at the request of a decisional patient

30. The best drug choice to treat dyspnea in this patient is an:

1) anti-cholinergic/anti-muscarinic (e.g. scopolamine)
2) anti-depressant (e.g. amitriptyline (Elavil))
3) anti-histamine (e.g. diphenhydramine (Benadryl))
4) opioid analgesic (e.g. morphine)

A 75y/o man is transferred to your inpatient ward from a nursing home because of cough, fever and headache. Chest x-ray shows a large pulmonary infiltrate and moderate sized pleural effusion. The patient has the capacity to make decisions for himself. Your

initial management plan includes starting IV antibiotics, performing a lumbar puncture and a thoracentesis.

31. Which of the following should be discussed with the patient prior to initiation of therapy to ensure patient consent?

1) None, consent is implied when patients are transferred from a nursing home
2) Only the lumbar puncture
3) Only the lumbar puncture and the thoracentesis
4) Pleurocentesis, lumbar puncture and IV antibiotics

32. All of the following must be present to establish that this patient has decision-making capacity except:

1) able to reason, to weigh treatment options
2) can express a choice among treatment options
3) is oriented to person, place and time
4) understands the significance of information relative to personal circumstances

A 60 y/o woman has metastatic breast cancer with bone and pleural metastases. Her husband brings her to clinic stating that over the past week she has noted fatigue, thirst and frequent need to urinate. On examination she is dehydrated and lethargic but arousable, there are no focal neurological findings. (questions 33-36)

33. The most likely diagnosis of this new problem is:

1) brain metastases
2) hypercalcemia
3) hyperglycemia
4) sepsis

34. Over the next week she deteriorates and becomes unconscious, the family decides that no further aggressive care is warranted. The family notices that the patient has very loud, raspy breathing and asks you if there is any treatment. You determine the cause is retained oro-pharyngeal secretions ("the death rattle"). The best class of drugs to treat "death rattle" is a(n):

1) anti-cholinergic/anti-muscarinic (e.g. scopolamine)
2) benzodiazepine (e.g. lorazepam (Ativan))
3) butyrophenone (e.g. haloperidol (Haldol))
4) opioid analgesic (e.g. morphine)

35. Two days later the patient dies; you are called to "pronounce the patient". As you enter the room there are four family members standing around the bed, each holding or touching the woman. Which of the following is not appropriate during this encounter:

1) ask the family to leave the room while you perform your examination.
2) offer to remove medical paraphernalia (e.g. oxygen mask, IV line).
3) stand quietly for a moment and offer consolation to the family
4) volunteer to contact family members not present.

36. Three months after the patient's death her husband comes to your office. He says that he sometimes thinks that his wife is in the house talking with him, that he imagines he hears her voice, he has gained 10 pounds since her death, but otherwise feels well. He is concerned that he is "going crazy". These symptoms are most consistent with a:

1) complicated grief reaction
2) major depression
3) normal grief reaction
4) psychotic disorder

ANSWER KEY

1. 4
2. 2
3. 2
4. 3
5. 3
6. 4
7. 1
8. 1
9. 1
10. 4
11. 3
12. 3
13. 3
14. 3
15. 4
16. 2
17. 2
18. 4
19. 4
20. 1
21. 3
22. 4

23. 2

24. 2

25. 2

26. 4

27. 2

28. 3

29. 2

30. 4

31. 4

32. 3

33. 2

34. 1

35. 1

36. 3

APPENDIX B

Permission to use Attitudes Towards End-of-Life Survey

From: Block, Susan Dale,M.D. [Susan_Block@dfci.harvard.edu]

Sent: Tuesday, April 02, 2013 10:44 AM

To: Wood, Erika L

Subject: RE: EOL Attitudes Assessment

Here is the survey. I think it is quite dated and I would suggest that it needs a lot of updating. But here it is. And good luck. susan

-----Original Message-----

From: Wood, Erika L [mailto:Erika.L.Wood@uth.tmc.edu]

Sent: Sunday, March 31, 2013 9:31 AM

To: Block, Susan Dale,M.D.

Cc: Nguyen, Linh M

Subject: EOL Attitudes Assessment

Dr. Block,

Hello, my name is Erika Wood. I am a second year medical student at UT Houston Medical School and am involved in the Geriatric/Palliative Medicine scholarly concentration. As part of the scholarly concentration, I am required to complete a scholarly activity by the end of my four

years. I am interested in assessing knowledge/attitudes regarding palliative care amongst my peers. I would like to focus on the students taking part in our one week palliative rotation and see how their knowledge/attitudes compare to the students who were not exposed to the palliative rotation (students are required to either do a palliative or a geriatrics rotation, not both).

I have come upon several of your papers and several other papers referencing your EOL Attitude survey tool. I was wondering, would you be willing to share your tool with me for my project and I will of course, credit you accordingly? From the questions I saw in "Educating Medical Residents in End-of-Life Care: Insights from a Multicenter Survey" (Schroder, et. al.), I would only use those applicable to a third year medical student (not the ones regarding treatment practices geared towards residents).

Thank you and I appreciate your time.

Best regards,

Erika L. Wood, MPH

UTH, Class of 2015

SIGHT, Local Initiatives Director

The information in this e-mail is intended only for the person to whom it is addressed. If you believe this e-mail was sent to you in error and the e-mail contains patient information, please contact the Partners Compliance HelpLine at http://www.partners.org/complianceline . If the e-mail was sent to you in error but does not contain patient information, please contact the sender and properly dispose of the e-mail.

APPENDIX C

Permission to use Palliative Knowledge Examination

From: Weissman, David [dweissma@mcw.edu]

Sent: Monday, March 18, 2013 6:14 AM

To: Wood, Erika L

Subject: Re: EOL Knowledge Examination - Request to Use

Permission granted--good luck with the project.

On Mar 16, 2013, at 11:33 AM, Wood, Erika L wrote:

> Dr. Weissman,
>
> Hello, my name is Erika Wood. I am a second year medical student at UT Houston Medical School and am involved in the Geriatric/Palliative Medicine scholarly concentration. As part of the scholarly concentration, I am required to complete a scholarly activity by the end of my four years. I am interested in assessing knowledge/attitudes regarding palliative care amongst my peers. I would like to focus on the students taking part in our one week palliative rotation and see how their knowledge/attitudes compare to the students who were not exposed to the palliative rotation (students are required to either do a palliative or a geriatrics rotation, not both).
>

> I have come upon several of your papers and several other papers referencing your EOL Knowledge Examination tool. I was wondering, would you be willing to share your tool with me for my project and I will of course, credit you accordingly?

>

> Thank you and I appreciate your time.

>

> Best regards,

>

>

> Erika L. Wood, MPH

> UTH, Class of 2015