

Development and Evaluation of a Palliative Medicine Curriculum for Third-Year Medical Students

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Abstract

Objective: To assess the impact, retention, and magnitude of effect of a required didactic and experiential palliative care curriculum on third-year medical students' knowledge, confidence, and concerns about end-of-life care, over time and in comparison to benchmark data from a national study of internal medicine residents and faculty.

Design: Prospective study of third-year medical students prior to and immediately after course completion, with a follow-up assessment in the fourth year, and in comparison to benchmark data from a large national study.

Setting: Internal Medicine Clerkship in a public accredited medical school.

Participants: Five hundred ninety-three third-year medical students, from July 2002 to December 2007.

Main outcome measures: Pre- and postinstruction performance on: knowledge, confidence (self-assessed competence), and concerns (attitudes) about end-of-life care measures, validated in a national study of internal medicine residents and faculty. Medical student's reflective written comments were qualitatively assessed.

Intervention: Required 32-hour didactic and experiential curriculum, including home hospice visits and inpatient hospice care, with content drawn from the AMA-sponsored Education for Physicians on End-of-life Care (EPEC) Project.

Results: Analysis of 487 paired *t* tests shows significant improvements, with 23% improvement in knowledge ($F_{1,486} = 881, p < 0.001$), 56% improvement in self-reported competence ($F_{1,486} = 2,804, p < 0.001$), and 29% decrease in self-reported concern ($F_{1,486} = 208, p < 0.001$). Retesting medical students in the fourth year showed a further 5% increase in confidence ($p < 0.0002$), 13% increase in allaying concerns ($p < 0.0001$), but a 6% drop in knowledge. The curriculum's effect size on M3 students' knowledge (0.56) exceeded that of a national cross-sectional study comparing residents at progressive training levels (0.18). Themes identified in students' reflective comments included perceived relevance, humanism, and effectiveness of methods used to teach and assess palliative care education.

Conclusions: We conclude that required structured didactic and experiential palliative care during the clinical clerkship year of medical student education shows significant and largely sustained effects indicating students are better prepared than a national sample of residents and attending physicians.

Introduction

EDUCATION OF MEDICAL STUDENTS about end-of-life care, palliative care, and hospice care in most medical school curricula remains inadequate. Attention to this deficiency has accelerated in intensity, reflecting a national focus on improving end-of-life care.^{1,2} More than 2.5 million Americans

will die in 2010. The majority will succumb to chronic progressive illnesses in which the patient and family know the cause of death well in advance.³ At least half those will experience pain, nausea, difficulty breathing, depression, fatigue, and other physical and psychological conditions that vastly diminish quality of life.^{4,5} The prevalence of these symptoms and situations appears to be similar for patients no

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matter what the underlying disease.⁵ Patients and families are unhappy with physicians' abilities to address these issues⁶ despite evidence that effective strategies exist.⁷ These factors reflect the critical need to improve education about palliative care for all physicians.

This need has stimulated private and public groups to determine core competencies physicians should possess to provide adequate care for patients and their families.⁸ These include knowing how to use clinical services in palliative care provided in hospitals and hospice programs. For many physicians, this is an important component of systems-based practice, an accreditation requirement in which "residents must demonstrate that they are aware of and responsive to the larger context and system of health care and can call on system resources effectively to provide optimal care."⁹

The Liaison Committee for Medical Education, the accrediting body for all 130 medical schools in the United States and the 17 medical schools in Canada, requires all medical schools to include education in palliative care and end-of-life care.¹⁰ The Medical School Objectives Project identified "knowledge of the major ethical dilemmas in medicine, particularly those that arise at the beginning and end of life" and "knowledge about relieving pain and ameliorating the suffering of patients" as outcomes that all medical students should have achieved by graduation.¹¹

Some courses on death and dying have been described.¹²⁻²⁰ However, descriptions of instruction in end-of-life or palliative care indicate it consists predominately of didactic courses in death and dying during the preclinical years. The absence of immediate clinical application of the material likely limits educational effectiveness.²¹⁻²⁴ In addition, there is evidence that the "hidden curriculum" in the clinical years blunts the effect of these preclinical educational efforts.²⁵

A national study of palliative care in undergraduate medical education found that, although most medical schools offer some formal teaching of the subject, there is considerable evidence that current training is inadequate, most strikingly in the clinical years. The authors concluded that "curricular offerings are not well integrated; the major teaching format is the lecture; formal teaching is predominantly preclinical; clinical experiences are mostly elective; there is little attention to home care, hospice, and nursing home care; role models are few; and students are not encouraged to examine their personal reactions to these clinical experiences."²⁶

Corroborating these findings, the majority of senior medical students surveyed about the adequacy of their education on end-of-life issues reported that they were unprepared to deal with issues regarding end-of-life care, due to insufficient curricular time devoted to death and dying topics as well as lack of standardization of training and evaluation. Although respondents did report some experience with end-of-life care, only 52% of students report being present during a patient's death in a do-not-resuscitate (DNR) situation and 26% of students have not followed a terminally ill patient for 2 weeks or more.²⁷

The objective of this study was to assess the impact, retention, and magnitude of effect of a required didactic and experiential palliative care curriculum on third-year medical students' knowledge, confidence, and concerns about end-of-life care, over time and in comparison to benchmark data from a national study of internal medicine residents and faculty.

Study Design and Methods

This educational intervention was conducted as a prospective longitudinal study. The hypotheses to be tested were:

1. Do measures of knowledge, attitudes, and skills improve after a 32-hour required curriculum in palliative care for junior medical students?
2. What evaluation instrument captures essential outcome information with the least testing burden to students?
3. What is the pattern of knowledge, attitudes, and skills retention in subsequent years of training using psychometrically equivalent instruments?

Learning objectives for each element of the curriculum are available from the corresponding author.

Curriculum development

The University of California, San Diego School of Medicine (UCSD SOM) requires all students to complete an independent study prior to graduation. The catalyst for our palliative care curriculum reform included the work of a fourth-year medical student, Wendy Evans, whose senior independent study project urged modifying existing, mostly classroom-based education in end-of-life care. The content was drawn from the Education for Physicians on End-of-Life Care (EPEC) curriculum,⁸ the national curriculum developed in collaboration with the AMA to establish the essential knowledge of palliative care for all U.S. physicians.

Evans persuaded the course director for the Ambulatory Block of the Internal Medicine Clerkship, Dr. Harry Bluestein, to increase curriculum time to 1 day per week for 4 weeks, during which students rotate to San Diego Hospice.

An Education Committee supervises the development and ongoing implementation of the curriculum. It is composed of the 19 full-time physician faculty who are certified by the American Board of Hospice and Palliative Medicine, 2 nurse practitioners, 5 nurses, 1 social worker, and 1 chaplain. Although additional nonphysician staff function as faculty in the clinical setting, they are included by representation of their discipline leaders. The course director for the Internal Medicine elective is an *ex officio* member of this committee for the purposes of approving curriculum for the rotation.

A 1-page schema of the curriculum is shown in Figure 1. A syllabus containing the material approved by the education committee is published in time for the beginning of the academic year, July 1. A faculty guide facilitates consistency between faculty. Syllabus materials are primarily drawn from the Education for Physicians on End-of-life Care (EPEC) project in order to ensure that the core competencies for physicians are transmitted.⁸ Other materials are drawn from the Residency Training Project in End-of-Life Care.²⁸ In particular, the Fast Facts component of the education provides concise information useful to medical students and residents.²⁹

The syllabus is designed with the specific goal of providing a resource to students that will be useful in subsequent years. Consequently, more material is included than is "covered" in the sessions. The syllabus serves the additional purpose of stimulating self-directed learning.

A faculty guide for the delivery of the curriculum was prepared and given to all faculty. A yearly faculty

	Week 1: Classroom	Week 2: Clinical	Week 3: Clinical	Week 4: Classroom
8:00-8:30	Pre-Survey Pre-Course Competency Rating Pre-Multiple Choice Test Course Orientation	Home Visits RN/MSW/Chap Students 1, 2, 3	Home Visits RN/MSW/Chap Students 4, 5, 6	
8:30-9:00	↓	Inpatient Care Center Students 4, 5, 6	Inpatient Care Center Students 1, 2, 3	Patient Presentations: Whole Patient Assessment
9:00 – 9:45	Hospice / Palliative Care Prognostication			With RN/Chaplain/SW/MD/ Bereavement Counselor
9:45-10:00	Break			<i>break</i>
10:00-11:00	Pain Equianalgesic Dosing			↓
11:00-11:15	<i>break</i>			<i>break</i>
11:15-12:00	Common Physical Symptoms Dyspnea Nausea / Vomiting Constipation			Evaluation • Post-Multiple Choice Test • Post-Survey • Post-Course Competency Rating
12:00-1:00	<i>lunch</i>	Faculty Meeting (Mon.)		<i>lunch</i>
1:00-3:00	Communication Standardized Patient			Ethics, Law, and the Evidence Base of End of Life Care: • Medical Futility • Withdrawal / Withholding of Therapy • Physician Assisted Suicide / Euthanasia 3 student pairs: 1 pair / topic • 15 minutes presentation each • 15 minutes discussion each
3:00-3:30	<i>Tour / Week 2 & 3 Assignments</i>			<i>3:00 – 3:15 break</i>
3:30-4:00	Terminal Phase			
4:00-4:15	<i>break</i>			
4:15-5:00	Death Declaration and Certification: What to say and do	↓	↓	Personal Reflection Projects and Professional Self-Care (1.5 hr) 6 students x 5-10 minutes / student Adjournment and Course Evaluation (15 min)

FIG. 1. Schema of curriculum. One day each week for 4 weeks during the 4-week ambulatory block of the 12-week internal medicine clerkship.

development half-day seminar helps them with their small group facilitation skills. Physician fellows are given the guide, and then “see” and “do” one with faculty before doing the curriculum with medical students on their own.

The only challenges encountered in developing and implementing faculty development workshops were those of scheduling around other activities—and needed to be planned in advance. All faculty are interested in teaching and wanting to be better teachers

Data collection

To ensure correct identification for comparisons of performance over time and protect confidentiality, packets for each student were prepared that included pre- and posttests on which identification numbers were placed. Our experiences in a pilot study have shown the feasibility of our data collection methods.³⁰

Main Outcome Measures

The primary end points for educational outcomes were measured using three validated instruments: (1) a 36-item knowledge test (Knowledge), (2) self-assessment of competency (Skill), and (3) self-assessment of concerns (Attitudes).⁴⁰ The instruments are included in the Appendix. In addition, students completed written surveys intended to elicit their perspectives of the palliative care education experience. Each of the statements is one of self-efficacy. These reflect the advocacy of Bandura across a career’s worth of work.

Analyses

Paired *t* tests were used to examine changes over time in students’ knowledge, confidence, and concerns. We conducted analysis of variance on mean performance on these measures to identify potential differences over student cohorts completing their required palliative care rotations within third year rotations and across academic years. Analysis of students’ written reflections used the constant comparison method of transcribed comments to identify themes, i.e., recurring unifying statements portraying the meaning of social phenomena to the participants. In order to reduce the burden of testing, we looked to see if the variation loaded onto a smaller number of questions; this was not the case. Consequently, the instruments as originally developed were used across the study period.

Results

One hundred percent of third-year medical students participated as this was a curriculum-evaluation project, where participation was compulsory. The Institutional Review Board (IRB) found the project to be exempt for this reason.

Knowledge

Analysis of 487 paired samples from third-year medical students demonstrated an improvement in knowledge from 52% correct to 67% correct (Fig. 2, lower panel, $F_{1,486} = 881$, $p < 0.001$ paired *t* test).

The students’ pretest knowledge score is not different ($p > 0.775$) from the 52% correct scored by postgraduate year 1 (intern) physician performance from the national sample of

more than 10,000 internal medicine residents in their first, second and third years of training and their internal medicine attending faculty (Fig. 3, lower panel). In contrast, students’ posttest knowledge score is higher than the score of 62% for physician faculty from the same national sample (Fig. 3, $p < 0.001$)

The curriculum’s effect size on M3 students’ knowledge (0.56) exceeded the effect size found in the national cross-sectional study comparing the end-of-life care knowledge across progressive training levels (0.18)

We looked for evidence of learning across cohorts as the academic year progressed, and across academic years. The results did not indicate the presence of such differences.

In subset analysis of knowledge, improvements in pain assessment, pain management, non-pain management or communication did not reach statistical significance (Fig. 4). Improvements in non-pain assessment and side-effects knowledge did reach statistical significance (Fig. 4, $F_{1,486} = 7.2$, $p = 0.008$; $F_{1,486} = 4.37$, $p = 0.04$, respectively). The five questions with the most improvement were prescribing medication for opioid-induced constipation, dosing for breakthrough pain, custodial care provided by hospice programs at home, need for parenteral hydration for the dying patient, and use of opioids to treat dyspnea. The five biggest changes for “un-learning” in the MS4 group were: DNR requirements for hospice care, treating death rattle, treating terminal delirium, using opioids for dyspnea, and disclosing prognosis.

Competency

There was a 56% improvement in confidence from a score of 1.7 to 2.9 (Fig. 2, top panel, $F_{1,486} = 2,804$, $p < 0.001$, paired *t* test) This scale uses a 4-point Likert type scale where 4=competent to perform independently, 3=competent to perform with minimal supervision, 2=competent for perform with close supervision, 1=need further basic instruction. In other words, medical students improve in self-assessed competency from needing close supervision to minimal supervision after completing the palliative medicine curriculum for the identified tasks. When compared with the performance of residents in the national sample, this corresponds to the competency greater than a second-year resident (Fig. 3, top panel, $p < 0.001$).

Concern

Third-year medical students demonstrate a 29% decrease in level of concern from a score of 1.9 to 1.4 (Fig. 2, middle panel, $F_{1,486} = 208$, $p < 0.001$ paired *t* test). This scale uses a 4-point Likert type scale where 4=very concerned, 3=somewhat concerned, 2=somewhat unconcerned and 1=not concerned about legal and ethical issues in response to scenarios of maximal pain control, withdrawing antibiotics, withdrawing tube feeding and withdrawing IV hydration from terminally ill patients. This corresponds to an improvement greater than that demonstrated among second year residents (Fig. 3, 1.7, $p < 0.001$) and third year resident and attending physicians (Fig. 3, 1.3, $p < 0.001$)

Retention

Fourth-year medical students who experienced the curriculum show considerable retention of the information after one

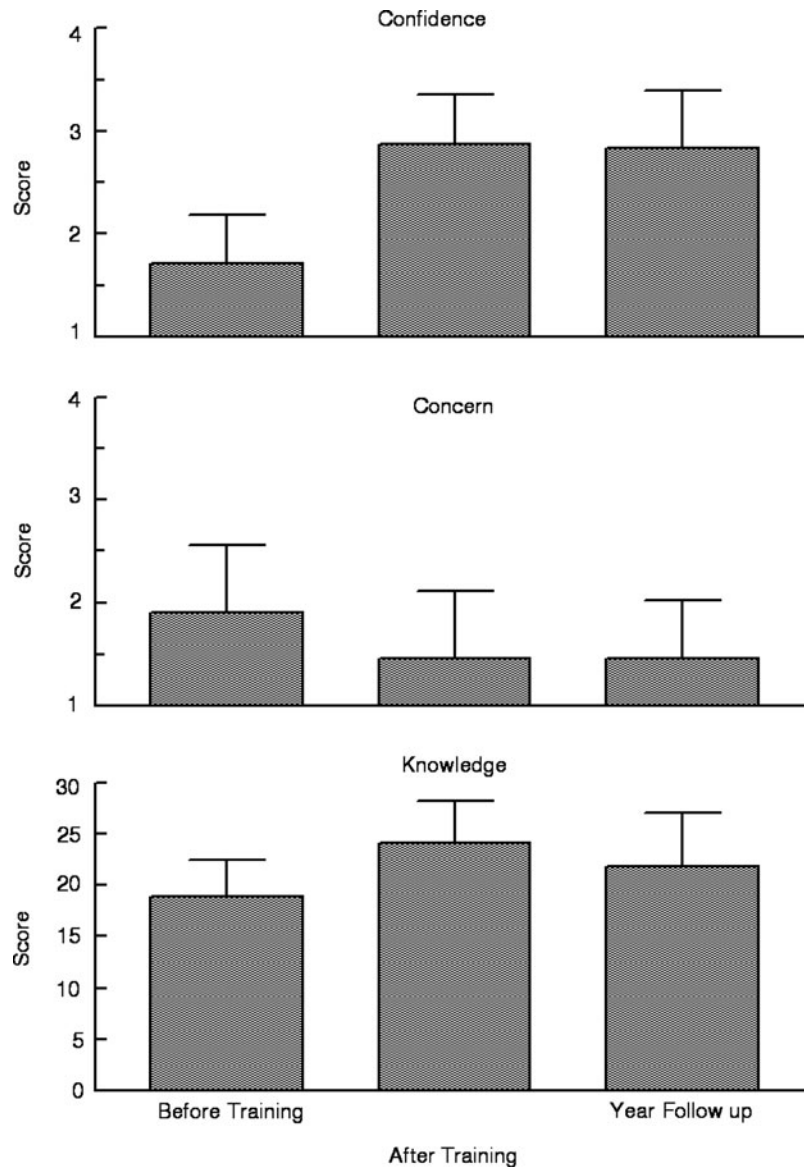


FIG. 2. Pre- and postscores from the third-year medical students and retest scores from fourth-year medical students.

year. Although there is a decrease in the score on the knowledge examination from 68% to 59% (Fig. 2, $p < 0.001$ paired t test), it does not return to the baseline level of 52%. Their final performance level is still higher than that for the national sample of interns and second year residents. There is no reason to think that students received additional palliative care education in their fourth year based on usual schedules.

Qualitative analysis

At the end of the course, students were asked open-ended questions about the curriculum. Almost all of the comments indicated that the students saw the course as effectively delivered. However, we recognize that the continuing impact of instruction is not dependent solely on the merit (technical adequacy and organization) of instruction. In this study, students' comments enable us to identify other features potentially affecting students' perception of the worth of the experience.

No students challenged the relevance of palliative care training or the grounding of the course in concepts and experiences intended to enhance students' understanding of humanism. Students' comments about the relevance of the course indicate most students perceived this training as relevant to all physicians, while a smaller portion of students considered the course useful for the "exposure" it provides. Others interpreted its relevance in terms of the particular specialty they intended to pursue. Furthermore, their comments indicate that they value instructional experiences promoting their reflection on the essential dignity of patients, as well as themselves. Finally, most students reported the multiple teaching methods and reflective exercises as well delivered. Their reservations focused on increasing the scope of their direct contact and participation in the care of patient and family care issues, while limiting the less interactive lecture components of the course. They also commented on the testing burden of the formal evaluation and the large amount of readings associated with the 4-day course.

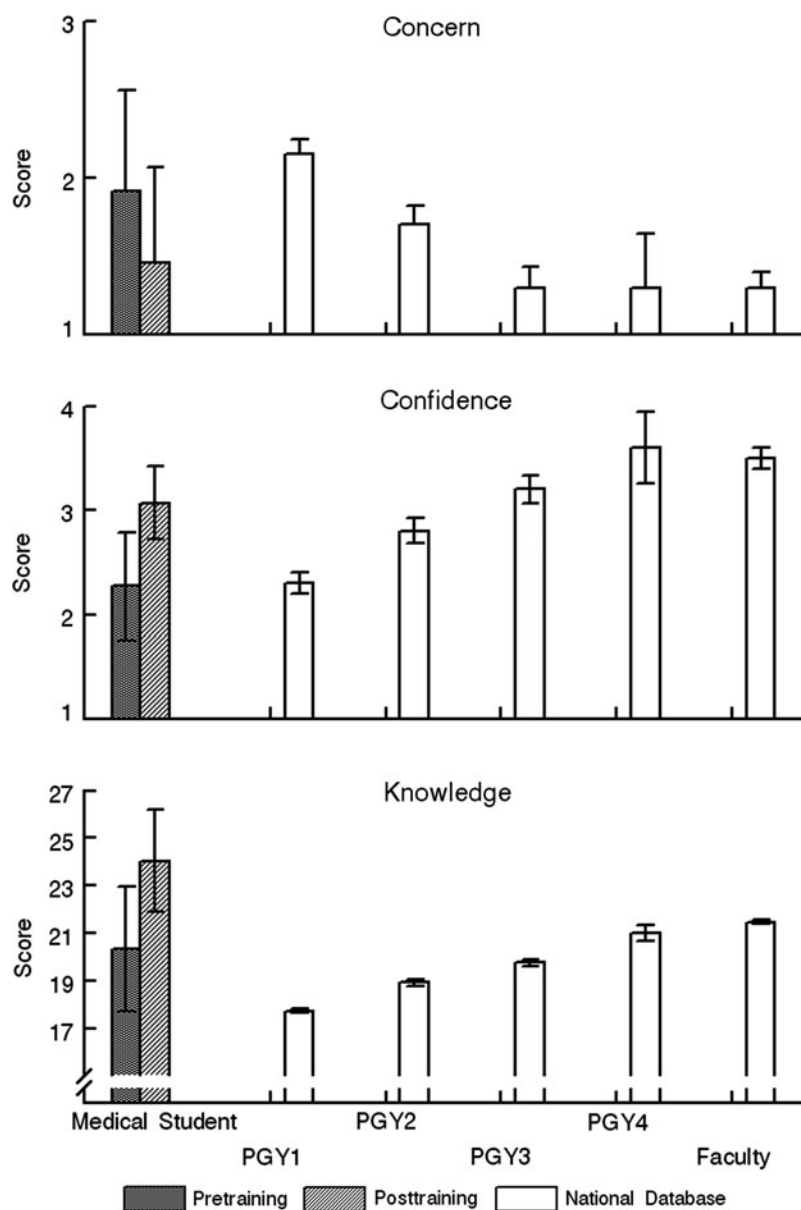


FIG. 3. Pre- and postscores from the third-year medical students shown with scores from a sample of 10,000 postgraduate year (PGY) 1 (intern), PGY-2, PGY-3, PGY4, and faculty from more than 400 internal medicine training programs in the United States.

Finally, we examined the results of the AAMC graduation questionnaire across the years of the curriculum. UCSD medical students rated their training in the top 1% nationally as compared with other medical schools.

Discussion

We conclude that a 4-day, 32-hour curriculum in end-of-life care leads to significant improvements in knowledge, skills, and attitudes that are sustained. Baseline assessments were stable across rotations and academic years, suggesting that the effects are not due to other changes in the medical school curriculum or in the larger social context. In addition, this also means students do not learn this material elsewhere in the clinical curriculum of the third year or the fourth year.

We chose the self-reported measurement of confidence to perform various skills because it had been used for the large comparative group of 10,000 internal medicine residents and faculty. In that setting, the choice is obvious because of the size of the group. Our need of a comparison group, and the size of our intervention, also favored the use of self-report. In further research, more focused evaluation of skills in a representative subset of students would be feasible.

Some who look at this data might be discouraged by the size of the absolute differences. Therefore, the statistical test of Effect Size is designed for situations like this. The Effect Size varies from 0–1 where an effect less than 0.3 is small, 0.4–0.6 is moderate, and 0.7 to 1 is large. In the national sample, the effect size for change was 0.18. In contrast, the effect size for this intervention is 0.56—a moderately large effect.

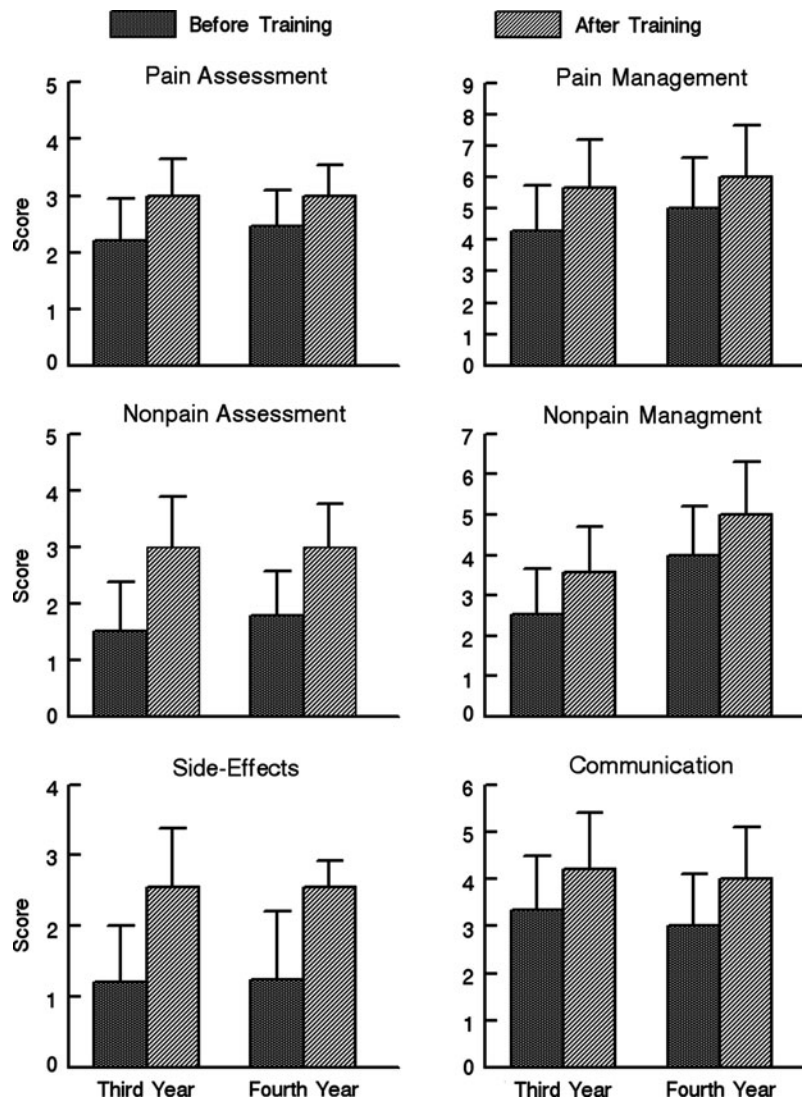


FIG. 4. Knowledge subscale analysis for third-year medical students.

This illustrates several important points about the evaluation instrument. First, the evaluation instruments were designed to cover all significant domains of palliative care—they were not designed to measure the achievement of specific learning objectives from a specific course. Consequently the instruments can be used across a variety of curricula, and an assessment of gain in the broad domain of palliative care can be discerned. For example, in our experience, only highly experienced faculty in the specialty of hospice and palliative medicine score 100%. Fellows studying in hospice and palliative medicine begin at the same level as medical students and rarely get out of the 70%–80% range despite an entire year of training. Therefore, the analogy to the thermometer is apt—a small change on the thermometer (from 37°C to 38.5°C on a 1–100 scale is tiny, but it is highly significant. The same is true for the instruments used in this study.

This curriculum is similar to that reported by the University of Maryland School of Medicine where they tested a required rotation in hospice and palliative medicine in the junior year. This module was received very positively by students and was ultimately made a mandatory part of the curriculum.³¹ At

the University of Rochester,³² the introduction of a major curricular reform curriculum integrating basic science and clinical training over 4 years of medical school, provided an opportunity to develop and implement a fully integrated, comprehensive palliative care curriculum. Dr. David Weissman has developed a comprehensive program of hospice and palliative medicine education at the Medical College of Wisconsin over the past 20 years, which includes a required course for second- and third-year medical students and clinical electives for fourth-year medical students on the palliative medicine consultation service in the University Hospital and with affiliated hospice programs.¹⁸

The importance of clinical training in end-of-life care is reflected in the 2006 decision of the American Board of Medical Specialties (ABMS) to approve hospice and palliative medicine as a subspecialty. A unique and precedent setting event for ABMS is that 10 members of the ABMS agreed to implement certification in hospice and palliative medicine as a cooperative effort among 10 cosponsoring boards, representing anesthesiology, emergency medicine, family medicine, internal medicine, obstetrics and gynecology,

pediatrics, physical medicine and rehabilitation, psychiatry and neurology, radiology, and surgery. The scope of the sponsoring Boards speaks strongly to the recognition that end-of-life care is highly valued across medical specialties.^{33–34}

This study drew on several principles of best practices. For students to acquire the necessary attitudes, knowledge and skills of hospice and palliative medicine, such education should be longitudinal, a mixture of didactic and experiential learning opportunities, contain opportunities for self reflection, provide opportunities to practice the skills they are learning, and be interdisciplinary.

We postulated that students learn best when they are exposed to the direct care of patients who are being treated with the knowledge, skills, and attitudes the student needs to develop. When family members of patients who died are asked about quality of end-of-life care, hospice programs perform better than hospitals, nursing homes, and home care (without hospice care).^{6,35} Thus, we chose to imbed training in end-of-life care in a hospice setting within a required core internal medicine rotation. Our results demonstrate that this approach successfully increases core knowledge and skills and decreases the level of concerns of learners who deal with the challenging issues surrounding death. It also demonstrates that a modest amount of instruction in the third year raises students' levels of knowledge to that of U.S. faculty.

Our approach to educational reform reflects the understanding that curricular change requires "buy-in" from educational leaders as well as provision of resources.^{28,36–43} When deans and faculty recognize the value of instruction, finding time in the curriculum becomes easier.

Limitations of our study include the inclusion of a single medical school and the lack of random assignment of trainees to the educational intervention. To address such threats to internal validity frequently confronting medical education research, we incorporated design elements to mitigate these limitations.⁴⁴ In our study, this included the use of benchmark data from a national study of residents and faculty, providing us with an empirical context from which to interpret the effect of our curricular training. In addition, we drew on the results of the Association of American Medical College's Graduation Questionnaire, to place our study's findings in the context of medical students' perceptions of end-of-life care education in other medical schools.

Another potential limitation is reflected in the extent of palliative care resources present in the study institution, for we recognize that the number of full time board-certified subspecialist palliative medicine physicians and subspecialty fellows and a dedicated hospice-based center for education and research are not broadly available in the United States. However, viewed another way, this is a strength. The study results were achieved with more than 40 different physician faculty suggesting that the results are not dependent on a single charismatic physician faculty member. Consequently, this is germane to the many hospice programs that host medical students as part of clinical clerkships.

The development of hospital-based palliative care teams can be seen as an effort to try to bring the skills developed in hospice programs into hospitals where they can be applied more broadly. Efforts to demonstrate patient-centered outcomes of such innovations are underway. As a way to ensure medical students are exposed to appropriate clinical care as

part of a hospice and palliative medicine education curriculum, collaboration with a hospice program or palliative care team can be an important element.

Although developed with many physicians, our curriculum does not require hospice-based physicians to teach it. This offers encouraging evidence that the curriculum could be adopted effectively by other schools. Dedicated inpatient consultation services and units are rapidly multiplying in the United States. Clinical medical student training can effectively occur in this environment. These factors suggest that the curriculum and its results are "portable," i.e., they could be extended to other training settings and populations.

For this curriculum a 50% time coordinator assured the students knew where to come and assembled the course materials for them. The syllabus was printed each year. Since the time of this study, it is now given to them on a "memory stick" The medical school covered the cost of developing the standardized patient for breaking bad news. The 16 hours of physician classroom time is required, which is the most expensive aspect of the course.

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Author Disclosure Statement

No competing financial interests exist.

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(Appendix follows →)



Center for Palliative Studies San Diego Hospice & Palliative Care

Curriculum in Palliative Medicine Exam Cover Sheet

You are participating in a Curriculum Evaluation Project. Your results are confidential. We will not report personal information or test results on an individual basis to your training program. Your results will not be used for purposes of grading or evaluating your individual performance. Your ID number is only used to match your pre-test with your post-test. Please fill out all information.

First Name _____ **Last Name** _____

Last 4 of SSN _____ **Student ID** _____ **Date** _____

3 rd Year Med Student	4 th Year Med Student	1 st Year Resident	2 nd Year Resident	3 rd Year Resident	Other
①	②	③	④	⑤	⑥

Residency Program Name _____

Pre-Exam **Post-Exam**

① ②

Gender

Male (M)

Female (F)

Ethnicity

Hispanic ①

Non-Hispanic ②

Unknown ③

Race

American Indian or Alaska Native	①
Asian	②
Native Hawaiian or other Pacific Islander	③
Black or African American	④
White	⑤
More than One Race	⑥
Unknown	⑦

Curriculum in Palliative Medicine

Please rank your competence to perform each patient / family interaction or patient management topic:

Please fill in marks like this: ● not like this: ⊖ ⊗

Competence:	Perform Independently A	Perform with Minimal Supervision B	Perform with Close Supervision C	Need Further Basic Instruction D
1. Conduct a family conference to discuss end-of-life decisions	Ⓐ	Ⓑ	Ⓒ	Ⓓ
2. Estimate a patient’s prognosis	Ⓐ	Ⓑ	Ⓒ	Ⓓ
3. Give bad news to a patient or family member	Ⓐ	Ⓑ	Ⓒ	Ⓓ
4. Discuss home hospice referral	Ⓐ	Ⓑ	Ⓒ	Ⓓ
5. Discuss a shift in treatment approach from curative to comfort care	Ⓐ	Ⓑ	Ⓒ	Ⓓ
6. Discuss treatment withdrawal (e.g. antibiotics, hydration)	Ⓐ	Ⓑ	Ⓒ	Ⓓ
7. Perform a basic pain assessment.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
8. Use of oral opioid analgesics	Ⓐ	Ⓑ	Ⓒ	Ⓓ
9. Use of parenteral opioid analgesics.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
10. Titrate opioid doses to pain relief	Ⓐ	Ⓑ	Ⓒ	Ⓓ
11. Use of adjuvant analgesics (e.g. tricyclics, steroids, anticonvulsants).....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
12. Assess and manage terminal delirium	Ⓐ	Ⓑ	Ⓒ	Ⓓ
13. Assess and manage terminal dyspnea.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
14. Assess and manage nausea and vomiting	Ⓐ	Ⓑ	Ⓒ	Ⓓ
15. Assess and manage constipation	Ⓐ	Ⓑ	Ⓒ	Ⓓ
16. Prescribe a bowel regimen to prevent constipation in continuous opioid therapy	Ⓐ	Ⓑ	Ⓒ	Ⓓ
17. Distinguish between normal dying and clinical depression	Ⓐ	Ⓑ	Ⓒ	Ⓓ
18. Perform a patient assessment; create a care plan to address physical, psychological, social, practical, and spiritual needs.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
19. Work with an interdisciplinary team	Ⓐ	Ⓑ	Ⓒ	Ⓓ
20. Assess patient decision-making capacity	Ⓐ	Ⓑ	Ⓒ	Ⓓ
21. Discuss advance directives with patients.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
22. Discuss do-not-resuscitate (DNR) orders.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
23. Pronounce death and complete a death certificate.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
24. Respond to requests for physician assisted suicide / euthanasia	Ⓐ	Ⓑ	Ⓒ	Ⓓ
25. Relieve breathlessness during withdrawal of mechanical ventilation.....	Ⓐ	Ⓑ	Ⓒ	Ⓓ
26. Advise patients and families about the use of artificial hydration and nutrition at the end of life	Ⓐ	Ⓑ	Ⓒ	Ⓓ

Physicians are often concerned that certain medical decisions are contrary to accepted legal, ethical, or professional standards, or that they may be contrary to their own personal beliefs. For each of the situations listed below, please indicate the type and amount of **concern** you have, using the following scale:

Please fill in marks like this: ● not like this: ○ ⊗

Survey:	Very Concerned	Somewhat Concerned	Somewhat Unconcerned	Not Concerned
	A	B	C	D

A. Decision: Providing maximal pain relief throughout a cancer patient’s illness, even before the terminal phase. Concerns:

- 27. This violates state law (A) (B) (C) (D)
- 28. This violates medical practice standards and represents malpractice (A) (B) (C) (D)
- 29. This violates accepted ethical norms (A) (B) (C) (D)
- 30. This violates my personal religious or ethical beliefs (A) (B) (C) (D)

B. Decision: Withdrawing non-oral feedings (G-tube or NG-tube) from a decisional terminal cancer patient who asks for such feeding to be discontinued. Concerns:

- 31. This violates state law (A) (B) (C) (D)
- 32. This violates medical practice standards and represents malpractice (A) (B) (C) (D)
- 33. This violates accepted ethical norms (A) (B) (C) (D)
- 34. This violates my personal religious or ethical beliefs (A) (B) (C) (D)

C. Decision: Withdrawing IV hydration from a terminal cancer patient, who can no longer take oral fluids and who is clearly dying. Concerns:

- 35. This violates state law (A) (B) (C) (D)
- 36. This violates medical practice standards and represents malpractice (A) (B) (C) (D)
- 37. This violates accepted ethical norms (A) (B) (C) (D)
- 38. This violates my personal religious or ethical beliefs (A) (B) (C) (D)

D. Decision: Withdrawing parenteral antibiotics from a non-decisional dementia patient with urosepsis, at the request of their Power-of-Attorney for Health Care or legal guardian. Concerns:

- 39. This violates state law (A) (B) (C) (D)
- 40. This violates medical practice standards and represents malpractice (A) (B) (C) (D)
- 41. This violates accepted ethical norms (A) (B) (C) (D)
- 42. This violates my personal religious or ethical beliefs (A) (B) (C) (D)

E. Decision: Withdrawing ventilator support from a non-decisional dementia patient at the request of their Power-of-Attorney for Health Care or legal guardian. Concerns:

- 43. This violates state law (A) (B) (C) (D)
- 44. This violates medical practice standards and represents malpractice (A) (B) (C) (D)
- 45. This violates accepted ethical norms (A) (B) (C) (D)
- 46. This violates my personal religious or ethical beliefs (A) (B) (C) (D)

Please identify the single best answer to the following questions by darkening in the “bubble” by the most appropriate answer: Please fill in marks like this: ● not like this: ⊖ ⊗

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 47-52)

47. Increasing pain in this patient most likely represents:

- Ⓐ new onset depression
- Ⓑ opioid addiction
- Ⓒ opioid tolerance
- Ⓓ worsening metastatic cancer

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

- Ⓐ neuropathic pain
- Ⓑ somatic pain
- Ⓒ vascular pain
- Ⓓ visceral pain

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

- Ⓐ 30 – 45 minutes
- Ⓑ 60 – 90 minutes
- Ⓒ 120 – 150 minutes
- Ⓓ 180 – 210 minutes

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

- Ⓐ oral hydrocodone (e.g. Vicodin, Lortab)
- Ⓑ oral hydromorphone (Dilaudid)
- Ⓒ oral long-acting morphine (e.g. MS Contin, Oramorph SR)
- Ⓓ oral meperidine (Demerol)

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

- Ⓐ amitriptyline (Elavil)
- Ⓑ neurontin (Gabapentin)
- Ⓒ ibuprofen (Motrin)
- Ⓓ lorazepam (Ativan)

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

- (A) docusate (Colace)
- (B) bisacodyl (Ducolax)
- (C) lactulose (Chronulac)
- (D) 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 53-54)

53. This woman's pain is best described as:

- (A) neuropathic pain
- (B) somatic pain
- (C) vascular pain
- (D) visceral pain

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

- (A) amitriptyline (Elavil)
- (B) ibuprofen (e.g. Motrin)
- (C) long-acting opioid (e.g. MS Contin, or fentanyl patch (Duragesic))
- (D) 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 55-59)

55. 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:

- (A) every 2 hours"
- (B) every 4 hours"
- (C) every 6 hours"
- (D) every 8 hours"

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

- (A) nausea to opioids is due to bowel distention and stimulation of the vagus nerve
- (B) nausea to opioids is usually accompanied with itching
- (C) nausea to opioids represents a drug allergy
- (D) nausea to opioids resolves in most patients within 7 days

57. 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:

- Ⓐ administer 0.2 mg naloxone (1/2 amp of Narcan)
- Ⓑ administer 0.4 mg naloxone (1 amp of Narcan)
- Ⓒ assess level of consciousness
- Ⓓ assess level of pupillary response

58. 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:

- Ⓐ 2-6 hours
- Ⓑ 7-12 hours
- Ⓒ 13-24 hours
- Ⓓ 25-36 hours

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

- Ⓐ hydrocodone (e.g. Vicodin or Lortab)
- Ⓑ hydromorphone (Dilaudid)
- Ⓒ methadone (Dolophine)
- Ⓓ 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 60-62)

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

- Ⓐ 3 mg oral = 9 mg intravenous
- Ⓑ 3 mg oral = 3 mg intravenous
- Ⓒ 3 mg oral = 1 mg intravenous
- Ⓓ 3 mg oral = 0.3 mg intravenous

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

- Ⓐ 1 mg morphine = 4 mg hydromorphone
- Ⓑ 1 mg morphine = 1 mg hydromorphone
- Ⓒ 1 mg morphine = 0.50 mg hydromorphone
- Ⓓ 1 mg morphine = 0.25 mg hydromorphone

62. On the second post-op day, the patient is using the same morphine infusion rate as in Question 61. 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:

- (A) 1.0 mg IV = 0.5 mg SQ
- (B) 1.0 mg IV = 1.0 mg SQ
- (C) 1.0 mg IV = 2.0 mg SQ
- (D) 1.0 mg IV = 4.0 mg SQ

A 24 y/o man is hospitalized for sickle cell crisis. At home he uses prn ibuprofen 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 prn 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 63-64)

63. Which one of the following interventions is not appropriate?

- (A) change meperidine to intravenous morphine
- (B) decrease the meperidine dosing interval to q2h
- (C) prescribe heating pad to areas of severe pain
- (D) teach relaxation and guided imagery

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

- (A) an increasing need for the drug over time
- (B) complaint of pain exceeding that expected for a given medical problem
- (C) development of a withdrawal syndrome when the drug is stopped
- (D) 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 65-70)

65. 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"?

- (A) ask the husband if family/friends/clergy might be better at transmitting bad news
- (B) ask the husband if he understands the principle of 'patient autonomy
- (C) ask the husband to define the type of information he feels you can present
- (D) ask the husband to tell you more about his concerns

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

- Ⓐ functional ability
- Ⓑ number of metastatic lesions
- Ⓒ serum albumin
- Ⓓ severity of pain

67. 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:

- Ⓐ on average patients with her condition live for about six-nine months
- Ⓑ only God can determine how long someone has to live
- Ⓒ you believe her time is short, only a few weeks to a few months
- Ⓓ you really can't tell how much time she has left

68. 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:

- Ⓐ conjugated estrogen (e.g. Premarin)
- Ⓑ haloperidol (Haldol)
- Ⓒ lorazepam (Ativan)
- Ⓓ megestrol acetate (Megace)

69. 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:

- Ⓐ a physician-of-record is identified
- Ⓑ DNR (no code) status
- Ⓒ expected prognosis of 6 months or less
- Ⓓ the approach is limited to a palliative, symptom-oriented approach

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

- Ⓐ bereavement program for surviving families
- Ⓑ night-time custodial care
- Ⓒ payment for all medications related to the terminal illness
- Ⓓ 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 71-73)

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

- (A) "about 2-3 days"
- (B) "about one week"
- (C) "only God can determine how long someone has to live"
- (D) "there is no way to tell for sure"

72. 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?

- (A) maintaining IV hydration will improve pain management
- (B) maintaining IV hydration will prevent dry mouth
- (C) stopping IV hydration will lead to painful muscle cramps
- (D) stopping IV hydration will lessen dyspnea associated with renal failure

73. 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?

- (A) family members should leave the room to help decrease the agitation
- (B) paradoxical worsening of this condition may occur after administration of a minor tranquilizer (e.g. Ativan or Valium)
- (C) placing the patient in a dark room will help decrease sensory input and reduce the agitation
- (D) 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, "lets just get this over with, put me to sleep and let me die". (Questions 74-76)

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

- (A) Clinical depression is a normal stage of the dying process
- (B) Depression associated with HIV is more difficult to treat than in cancer patients
- (C) Feelings of hopelessness/worthlessness are indicators of a clinical depression
- (D) The degree of appetite and sleep disturbance is predictive of response to anti-depressant medication

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

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

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

- Ⓐ anti-cholinergic/anti-muscarinic (e.g. scopolamine)
- Ⓑ anti-depressant (e.g. amitriptyline (Elavil))
- Ⓒ anti-histamine (e.g. diphenhydramine (Benadryl))
- Ⓓ 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. (Questions 77-78)

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

- Ⓐ None, consent is implied when patients are transferred from a nursing home
- Ⓑ Only the lumbar puncture
- Ⓒ Only the lumbar puncture and the thoracentesis
- Ⓓ Pleurocentesis, lumbar puncture and IV antibiotics

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

- Ⓐ able to reason, to weigh treatment options
- Ⓑ can express a choice among treatment options
- Ⓒ is oriented to person, place and time
- Ⓓ 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 79-82)

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

- Ⓐ brain metastases
- Ⓑ hypercalcemia
- Ⓒ hyperglycemia
- Ⓓ sepsis

80. 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):
- Ⓐ anti-cholinergic/anti-muscarinic (e.g. scopolamine)
 - Ⓑ benzodiazepine (e.g. lorazepam (Ativan))
 - Ⓒ butyrophenone (e.g. haloperidol (Haldol))
 - Ⓓ opioid analgesic (e.g. morphine)
81. 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:
- Ⓐ ask the family to leave the room while you perform your examination
 - Ⓑ offer to remove medical paraphernalia (e.g. oxygen mask, IV line)
 - Ⓒ stand quietly for a moment and offer consolation to the family
 - Ⓓ volunteer to contact family members not present.
82. Three months after the patients 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:
- Ⓐ complicated grief reaction
 - Ⓑ major depression
 - Ⓒ normal grief reaction
 - Ⓓ psychotic disorder