The Effect of a Community Hospice Rotation on Self-Reported Knowledge, Attitudes and Skills of Third-Year Medical Students

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Abstract - INTRODUCTION: Increasing attention is being paid to educating practicing and future physicians about end-of-life care. Since 1994, the University of California, San Diego has provided a mandatory 16-hour rotation for third-year medical students in hospice and palliative medicine at a community hospice.

AIM OF INVESTIGATION: To determine the effectiveness of an intensive, community-based rotation in changing palliative medicine attitudes, knowledge and skills among third-year medical students.

METHODS: Pre- and post-test questionnaires incorporating self-assessment of knowledge, attitudes and skills were administered to 195 third-year medical students before and after completion of this rotation from 1997 to 1999. Analyses compared responses, controlling for age, gender and previous clinical experience.

RESULTS: In general, students report a deficit in their ability to perform palliative medicine tasks, irrespective of prior clinical experience. Students reported significant improvements in each of 17 items measuring knowledge and confidence performing palliative medicine tasks after completion of the rotation. Medical students reported positive attitudes about palliative medicine which improved after the rotation. However, as a result of the rotation, medical students were more likely to report self-awareness of personal fear about death.

CONCLUSIONS: This rotation may serve as a model for teaching the art and science of palliative medicine to physicians in training.

KEY WORDS: medical student, education, palliative medicine, hospice, attitudes, knowledge, self-assessment

Over the past decade, there has been expanding public attention paid to care at the end of life. Increasingly medical schools are offering curricula on death and dying, residencies are including palliative care components and specialty board exams are reflecting the growing body of knowledge surrounding end of life care. The American Board of Hospice and Palliative Medicine recognizes hospice and palliative care as a sub-specialty of advanced training.

While nearly all medical schools offer some training in end-of-life care, there is evidence that such training is variable and inadequate, particularly in the clinical years. Educational efforts may be suboptimal because they focus on lectures in the pre-clinical years, lack inclusion of hospice, skilled nursing and home care, do not offer prolonged contact with mentors who model appropriate skills and do not allow students time to examine their personal response to these experiences. Surveys show that doctors in training are uncomfortable in caring for terminally ill patients and feel inadequately prepared to deal with the complex medical, psychological and spiritual issues faced by the dying and their loved ones. This paper describes the knowledge, attitudes and self-assessed skills of third-year medical students at the beginning of their rotation as well as the significant changes which occurred after their community hospice experience. The impact of previous clinical experience on self-assessed knowledge and skills is also examined.

Methods

In 1994, the University of California, San Diego School of Medicine began a mandatory 16-hour clinical rotation for third-year medical students in hospice and palliative medicine at a community hospice. All third-year medical students from the University of California, San Diego 1997-98 and 1998-99 academic years participated in a mandatory rotation at San Diego Hospice and were included in the
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Study. San Diego Hospice is a not-for-profit hospice with a 24-bed inpatient acute care center and more than 200 outpatients. Each group of three to six medical students participated in a 16 hour rotation (12 hours when rotations included holidays) during their outpatient internal medicine rotation. The rotations differed somewhat over the two years with variability in the type of interdisciplinary team experience, initiation of a standardized patient experience in “breaking bad news” and variability in patient care experience. For example, most students visited with patients in the inpatient unit, but some had home or skilled nursing facility settings, experience in discussing

| Table 1: Objectives of a required community rotation in hospice and palliative care for third-year medical students at the University of California, San Diego, 1997-1999. |
|---------------------------------------------------------------|
| **At the completion of the rotation, students should be able to:** |
| • Define the hospice philosophy and the population hospice serves. |
| • Define palliative medicine. |
| • State at least five different factors that might influence a patient’s report of pain. |
| • Obtain a pain history. |
| • Classify pain by pathophysiology into categories and describe differences in management. |
| • Develop a detailed problem list and comprehensive treatment plan for a hospice patient with terminal illness. |
| • Calculate conversion doses of commonly used opioids. |
| • Interview a dying patient and his/her family and present the story at an interdisciplinary conference. ** OR Describe the roles of the various interdisciplinary team members in caring for terminally ill patients.** |
| • Name three common symptoms which occur at the end of life and describe at least two therapies for each. |
| • Name three common adjuvant therapies and describe situations where they may be effective. |
| • Name three commonly used opioids and describe situations where each is most desirable. |
| • Demonstrate skill in “breaking bad news” and communicating with a standardized patient regarding prognosis, treatment options and palliative care in a small group experience. |
| *Objective used in 1997-1998. |
| **Objective used in 1998-1999. |

Although the majority of education was provided by full-time hospice and palliative care physicians, the objectives, curricula, and evaluation methodologies which are shown in Table 1 were developed and modified by an interdisciplinary team including nurses, chaplains and social workers. The key components of the rotation which are shown in Table 2 included: close contact with a full-time palliative medicine specialist, contacts with hospice patients and their families in inpatient, home care or skilled nursing facility settings, experience in discussing advance directives and “breaking bad news,” interdisciplinary interactions, attention to psychosocial/spiritual issues and examinations of personal concerns surrounding death and dying. Between one-fourth and one-half of the rotation was devoted to patient care experiences individually, in small groups or with the attending physician; the standardized patient experience and didactic lectures consumed about two hours each.

About three quarters of the students were taught by one of two faculty members (including the author RF); however, all four faculty members involved in teaching were certified by the American Board of Hospice and Palliative Medicine, full-time employees of the community hospice, and held clinical faculty appointments at the University of California, San Diego.

To assess the preparation of incoming students and to evaluate and improve the rotation, an inter-
disciplinary team (including a bereavement specialist/social worker, chaplain, nurse and physician) developed an instrument which was first used September 1997. Tables 3 and 4 present the content of the instrument. The instrument was developed based on the clinician’s personal experiences, as well as theory and literature review. This instrument included 17 items measuring knowledge and competency to perform such palliative medicine tasks as taking a pain history and working with interdisciplinary teams, as well as 10 other items regarding attitudes about end-of-life care.

Each student received a letter of introduction and welcome which included the objectives of the rotation prior to arrival. Students completed a 27-item initial survey of their attitudes and knowledge immediately upon arrival and prior to receiving any instruction. At the culmination of the rotation, students completed an identical instrument in 1997-98 and a 34 item instrument in 1998-99 (which included 7 additional items related to the rotation evaluation). Student responses to each item were registered (1= strongly disagree, 2= somewhat disagree, 3=no opinion/undecided/neutral, 4= somewhat agree, 5= strongly agree).

Student’s age and gender were obtained by self-report. If students did not indicate age, birth date was obtained from the medical school records. An
an additional variable was defined that reflected the amount of experience a student had accumulated in clinical rotations prior to their hospice rotation. Lower numbers reflected an earlier experience and consequently less clinical experience and higher numbers reflected a later rotation and more clinical experience.

The faculty member informed the students that their responses on this instrument were used “to develop and improve the rotation” but would not be included in their particular evaluation. The instruments were collected unread by the individual faculty member and passed to a secretary who collated pre and post-tests for each student. As this instrument was designed to evaluate and improve the rotation, institutional review board approval was not obtained.

Simple descriptive statistics were used and Pearson correlations were obtained between various items and time of rotation. Paired t-tests were used to evaluate whether differences in mean scores between pre- and post-tests were significant. Because of multiple comparisons, a more conservative p value of <.001 was accepted as significant. Data were entered and analyzed using SPSS for Windows release 8.0.

Table 3. Self-reported differences in knowledge and skill to perform tasks related to hospice and palliative medicine before and after a mandatory 16 hour community hospice rotation among 195 third-year medical students at the University of California, San Diego, 1997-1999.

| Item                                                                 | Initial Mean Score* | Final Mean Score* | Change |
|----------------------------------------------------------------------|---------------------|-------------------|--------|
| I can state at least 5 different factors which might influence a person’s report of pain | 2.74                | 4.49              | 1.74** |
| I am able to evaluate physical, psychological, social and spiritual issues, given a patient’s history | 3.18                | 4.16              | 0.98** |
| I can describe the hospice philosophy and the population hospice serves | 3.01                | 4.52              | 1.51** |
| I can define palliative medicine                                     | 3.48                | 4.59              | 1.11** |
| I can name the steps on the WHO pain ladder and list examples of medications included at each step | 1.47                | 4.24              | 2.77** |
| I feel comfortable calculating conversion doses of commonly used opioids | 1.56                | 4.30              | 2.74** |
| I can manage common symptoms encountered in the terminal phase        | 1.72                | 3.98              | 2.26** |
| I feel comfortable working with interdisciplinary teams               | 4.00                | 4.42              | 0.42** |
| I feel comfortable communicating with dying patients and their families | 3.17                | 4.02              | 0.85** |
| I feel comfortable taking a pain history and writing orders for pain medications | 2.63                | 3.99              | 1.36** |
| I understand how to diagnose and treat different types of pain       | 1.97                | 4.20              | 2.23** |
| I feel I could break bad news to a patient that they have a terminal diagnosis and initiate discussion of hospice care with them | 2.80                | 4.16              | 1.36** |
| I could respond to a patient requesting physician-assisted suicide    | 2.70                | 3.51              | 0.81** |
| I could tell patients and families about the dying process            | 2.47                | 3.89              | 1.42** |
| I am prepared to care for dying patients                              | 3.23                | 3.87              | 0.64** |
| I could care for a dying patient at home                              | 2.49                | 3.54              | 1.05** |
| I can discuss code status with patients                               | 3.49                | 4.04              | 0.55** |

*Scores are reported from 1-5 where 1=strongly disagree, 2=somewhat disagree, 3=no opinion/undecided/neutral, 4=somewhat agree and 5=strongly agree.

**p < 0.001; two-tailed test
Results

In 1997-1998, 110 students completed the rotation, and 136 students completed the rotation in 1998-1999. Pre- and post-test data were available for 195 students and complete data sets were obtained for 185. Analyses of each item included all students who had completed that item. Mean age was 26 years (range 22-40 years; SD 3 years) and 60% of the students were men. In general, students completed this instrument in 5-15 minutes.

As can be seen in Table 3, at the initiation of their experience, students disagreed (score < 3) with 11 of 17 statements measuring self-assessed confidence and skills to perform palliative medicine tasks, particularly those tasks associated with pain and symptom control. Items where students reported confidence (scores > 3) regarded working with interdisciplinary teams, evaluating psychosocial-spiritual issues, communicating with dying patients and families and defining hospice and palliative medicine. Whether the hospice experience occurred earlier or later in the third year of medical school was not found to significantly influence any item except that those who were further in their medical education were more likely to agree with the statement, “I feel comfortable taking a pain history and writing pain medications” (r= 0.167; p=0.017; n=206).

At the conclusion of the rotation, there were significant positive changes in confidence and self-assessed skills in all 17 items. The greatest improvements involved students’ assessment of their ability to diagnose and treat various types of pain, their ability to describe the World Health Organization approach to pain, their confidence in calculating opioid conversion doses, their ability to manage symptoms in the terminal phase, their ability to break bad news about terminal diagnoses and initiate discussion of hospice, their confidence in telling patients and families about the dying process, and their ability to discuss code status with patients.

Table 4 presents the pre to post change results. In general, students entered the rotation without negative attitudes toward hospice and terminally ill patients and self-reported changes in attitudes were less dramatic than changes in self-assessed skills. At the conclusion of the rotation, students reported increased awareness of personal fear about dying, were more likely to agree that a referral to hospice did not

| Item                                                                 | Initial Mean Score | Final Mean Score | Change |
|----------------------------------------------------------------------|--------------------|------------------|--------|
| This rotation will be applicable to my practice of medicine           | 4.52               | 4.67             | .0.15  |
| I am aware of a lot of personal fear about death                      | 3.37               | 3.81             | .44**  |
| I am willing to examine my personal fears about dying                 | 4.33               | 4.28             | .0.05  |
| Patient’s families often act to impede good care                     | 2.63               | 2.80             | .17+   |
| I am more interested in learning about symptom management than        | 1.93               | 2.21             | .28*   |
| communication skills                                                  |                    |                  |        |
| Palliative medicine is so specialized, it is not very applicable to    | 1.64               | 1.66             | .02    |
| other patient care                                                    |                    |                  |        |
| “No code” patients take less time                                     | 2.08               | 1.89             | -0.19* |
| A referral to hospice means the physician has given up on the         | 1.83               | 1.49             | -0.34**|
| patient                                                               |                    |                  |        |
| Talking directly about death creates fear in patients                 | 2.51               | 2.21             | .30*   |
| Working with the dying is depressing and sad                          | 2.21               | 2.92             | .71**  |

++Scores are reported from 1-5 where 1=strongly disagree, 2=somewhat disagree, 3=no opinion/undecided/neutral, 4=somewhat agree and 5=strongly agree.
+ p<0.05, two-tailed test
*p<0.01, two-tailed test
**p<0.001; two-tailed test
imply that the physician had given up on the patient and were less likely to believe that working with the dying is depressing or sad compared to their responses prior to the rotation. Whether the hospice experience occurred earlier or later in the third year did not significantly influence any “attitude” item.

Discussion

This paper describes the changes in self-reported knowledge, attitudes and confidence to perform skills in hospice and palliative medicine as a result of a community-based, mandatory interdisciplinary 16-hour rotation for third-year medical students.

Students entering the rotation reported many deficits in their ability to care for terminally ill patients. At the onset, students reported they felt uncomfortable or neutral in their ability to take a pain history and prescribe opioids, to diagnose and treat various types of pain, to “break bad news” to patients, to respond to requests for physician-assisted suicide, to discuss death and dying with patients and families and to care for dying patients at home.

The rotation significantly improved students’ self-assessment of their knowledge and skills. Students reported increases in measures of knowledge about hospice and palliative medicine after the rotation. In addition, students were significantly more likely to feel confident in their ability to name factors influencing pain, evaluate psycho-social-spiritual influences, describe hospice and palliative medicine, calculate opioid conversion doses and manage symptoms at the end of life. Compared to their self-assessment at the beginning of the rotation, medical students were less likely to believe that a hospice referral implied giving up on the patient and less likely to believe that talking directly about death creates fear in patients.

Increasing amount of clinical experience (defined as when in the third year the students had their rotation) did not significantly impact most of students’ self assessments. With increased clinical experience, students felt slightly more comfortable in taking a pain history, but no other item was altered by experience, indicating that the curricula taught as part of the hospice and palliative care rotation is available nowhere else in their third-year medical curricula.

Our findings are similar to those of others who have reported that a brief but intensive experience in palliative care can be associated with significant alterations in both knowledge and confidence in dealing with physical and psychosocial problems and ability to cope with these situations. Some authors suggest that this increased confidence or “proficiency” is a fundamental outcome for adult learners. Self-efficacy, a belief in one’s ability to accomplish a behavior, is an important cognitive connection between knowledge and action and often directs the amount of effort or persistence to be spent on performance. Studies show that clinicians who are knowledgeable and skilled may fail to apply certain techniques successfully unless they have a strong belief in their capability and that confidence is correlated with frequency and proficiency of behaviors being expressed.

Previous studies have focused mainly on medical students’ attitudes regarding terminally ill patients or the effect death and dying education has on these attitudes. For example, medical students (n=65) reported positive attitudinal changes in 16 of 23 items as a result of a required 16-hour hospice rotation including more positive associations with hospice and palliative medicine.

In general, changes in attitudes were less dramatic than changes in self-reported ability to accomplish palliative medicine tasks. This difference is partly because our students lacked many of the negative attitudes about terminal patients seen historically. This may be due to the fact that University of California, San Diego medical students are exposed to hospice starting in the first year, or it may be a nationwide trend with increased attention focused on care at the end of life. However in spite of positive attitudes, many students (and practicing physicians) lack confidence in their ability to complete specific clinical tasks important in end of life care. Students may be uncomfortable working with terminally ill patients or performing palliative medicine tasks because of a lack of experience, knowledge, or positive role models in this area, rather than any inherent bias toward this population. It is not uncommon in our experience for students to relate negative or painful experiences about under-use of opioids, care of the dying, how code status is addressed and how “bad news” is broken in their ward rotations. Our mandatory rotation was less focused on changing or exploring attitudes and more on providing skills, education and modeling to teach students both the art and science of palliative medicine.
Interestingly, students at the conclusion of the required rotation reported a higher level of personal fear about death compared to the beginning of the experience, a finding which contradicts that of other researchers who found reduced fear of death (30) or no change in death fear (31). This phenomenon may be due to the fact that the final evaluation of the rotation often occurred immediately after students presented their “personal projects” a creative outlet for exploring personal reactions to the rotation. Students might discuss their grief over the death of a patient or family member, read poetry about death, or show art with the theme of grief, death and loss. It may also be that contact with death and dying can increase personal fear surrounding existential issues and one’s own mortality. Field and Howells concluded that those who report a high level of fear about death may report more subjective difficulty with dying patients but do not differ in self-report of caring behaviors. Howells and colleagues reported that clinically experienced medical students reported thinking more about their own dying process after interacting with a dying patient. Our instrument was a crude measure of the multidimensional variable of “death fear” which includes fear of one’s own death, working with the dying, and death of loved ones. Further studies may elucidate whether this increase in self-reported fear is psychologically detrimental or therapeutic!

We are not the first to develop a hospice and palliative care rotation and the core components of our rotation do not differ substantively from those offered at other institutions. What material to include in a hospice and palliative care rotation is of interest to many. One survey of hospice physicians validated 36 objectives in the areas of knowledge, attitudes and skills which are considerably more detailed than those we used but do encompass our objectives. Our work and that of others suggests such education would include biomedical information on recognition and treatment of symptoms associated with terminal illness, skills in physician-patient and physician-family communication (particularly breaking bad news, making treatment decisions, and discussion of advance directives), the role of the interdisciplinary team, and ethical and psychosocial-spiritual issues involved in hospice and palliative medicine. Recognizing which patients are hospice-appropriate and learning to make a hospice referral are also important. The use of an interdisciplinary team and frequent feedback from students was invaluable in assisting with the difficult decisions regarding time allocation.

There are several limitations to this study. The instrument was not formally validated and all information obtained was by self-report. Validity is strengthened by the fact that students frequently indicated similar comments about their increased confidence on open-ended questions used to evaluate their rotation (both immediately after the rotation and in summary evaluations offered by the medical school at the end of each quarter). In addition, our questions are similar to those in other instruments developed to further assess knowledge and attitudes.

Interpretation of study results is hampered by the fact that we cannot determine if students merely felt more comfortable with palliative medicine tasks, or whether they were actually more skilled. However, it is intuitively obvious that self-report would be the preferred manner of evaluation of an individual’s own assessment of their confidence or skills. Future studies might compare students’ assessment of their skills and knowledge with actual skill measured by pre and post-testing. Although students were told that their responses would not influence their evaluation, they may have indicated responses to “please” the instructor and had little or no real change in knowledge, attitudes or behavior. Finally, as the evaluation was completed immediately following the rotation, it is impossible to ascertain whether changes in knowledge, attitudes or skills were sustained. However, work of others has suggested that students undergoing a clinical hospice experience in medical school report sustained improvements in their communication skills, ability to manage pain and understanding of quality of life issues.

Although medical schools are increasingly adding end-of-life care to their curricula, research suggests these efforts are patchy and may be inadequate. Among fourth year medical students at Georgetown, less than half thought their education regarding end of life care was adequate and few had discussed end of life issues with a patient or felt comfortable discussing advance directives. Another survey of medical students completing their third year found that 57% reported they were not well-prepared to deal with terminally ill patients.
and a third survey of senior medical students reported that up to two thirds assessed their training in palliative medicine tasks as inadequate. Results of the American Association of Medical Colleges 1998 Medical School Graduation Questionnaire (with over 13,000 students responding), found that 29% felt their instruction regarding death and dying was inadequate, while 66% felt their instruction regarding pain management was inadequate (13). Billings and Block’s comprehensive review of the literature in this area reported that most end-of-life education is preclinical with more lecture than direct patient care at home, in hospices or in skilled nursing facilities. They note that few experiences utilize role models and students are not encouraged to examine their personal issues surrounding death and dying. Our rotation addressed many of these limitations. Our inclusion of role models who care for dying patients full-time, direct patient care experiences, and individualized opportunities for personal reflection were likely contributors to the students’ increased confidence. This paper highlights the success of a required hospice and palliative care rotation which emphasized clinical teaching in improving student’s knowledge of end-of life care and their confidence in caring for dying patients and their families.

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