

Hospice and Hospital Oncology Unit Nurses: A Comparative Survey of Knowledge and Attitudes About Cancer Pain

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Purpose/Objectives: To identify knowledge strengths and weaknesses and misperceptions about cancer pain management between two groups of registered nurses in different settings.

Design: Descriptive, comparative survey.

Setting: 11 community-based hospices and 7 inpatient hospital oncology units within an urban county.

Sample: A convenience sample of 30 hospice and 34 hospital oncology unit nurses. Sample criteria included registered nurses who had worked for at least the preceding six months exclusively in either a hospice or hospital oncology unit.

Methods: The North Carolina Cancer Pain Initiative survey and a demographic survey were distributed to the work mailboxes of nurses in the participating facilities who met the inclusion criteria.

Main Research Variables: Hospice and hospital oncology unit nurses' knowledge and attitudes about basic pharmacologic cancer pain management.

Findings: Hospice nurses scored significantly higher than hospital oncology unit nurses regarding overall pain management knowledge, opioids, scheduling, and liberalness. Hospice nurses also reported more pain education and a higher frequency of pain guideline review requirements than hospital oncology unit nurses.

Conclusions: The most prevalent knowledge deficits concerned opioids. Practice setting and pain education may influence knowledge, as well as attitudes, about pain.

Implications for Nursing Practice: Further research is needed regarding nurses' pain management behavior and outcomes of pain management education in various settings.

The World Health Organization (WHO) (1996) has estimated that approximately one-third of patients receiving cancer treatment and more than two-thirds of patients in the advanced stages of cancer experience pain. The suffering associated with pain often can interfere with daily living activities, adversely affect quality of life, and exacerbate fear among patients with cancer (Ingham & Foley, 1998; McCabe, 1997). Although complete relief of suffering is a major goal of cancer care, misperceptions about pain persist, and cancer pain continues to be inadequately treated (Oncology Nursing Society,

Key Points . . .

- ▶ Misperceptions about cancer pain and insufficient management of cancer pain have been widely documented in the literature.
- ▶ Adequate knowledge about cancer pain is crucial for all nurses in different delivery systems who care for patients who are suffering.
- ▶ Work settings that emphasize total pain relief, as well as increased pain education, may positively affect nurses' knowledge and attitudes about pain.

1998; U.S. Department of Health and Human Services, 1994). This inadequate treatment of pain has serious ethical implications, including threatened patient autonomy, loss of patient dignity, and absence of patient freedom (Henkelman & Dalinis, 1998; McCabe).

For patients with terminal cancer, the final stages of the disease process can be devastatingly painful, and frequently these patients are referred for care through hospice programs. However, many terminally ill patients do not receive hospice care or fail to enter hospice programs until the last few days of life (Hospice Association of America, 1998; Massey & Hurzeler, 1998). Thus, the core principles of hospice care must be integrated into all healthcare delivery systems (Massey & Hurzeler), and comfort measures should command as much importance in the hospital setting as in the hospice setting (Twyccross, 1990). Within these different settings, nurses caring for patients

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with cancer have a tremendous impact on pain control. This impact can be facilitated by pain management assessment skills, comprehensive theoretical knowledge, and supportive pain management attitudes (Heath & Reid-Finlay, 1998). Although various investigations have examined nurses' knowledge and attitudes about pain, few studies have compared these variables specifically between hospice and hospital nurses. Therefore, the purpose of this comparative survey was to explore knowledge and beliefs about cancer pain among nurses within these different delivery systems.

Literature Review

Cancer Pain Management in Hospice and Hospital Settings

Several studies have described inadequate management of pain in hospices and hospitals. Within a hospital setting, Paice, Mahon, and Faut-Callahan (1991) analyzed pain intensity among randomly selected surgical patients with cancer in conjunction with patient assessment and analgesic documentation practices. The results indicated that although patients still experienced pain, the mean opiate dose given by the nurses was only 11.1 mg during a 24-hour period. However, the mean dose ordered during this time frame was 94.9 mg. Furthermore, 38% of the patients stated that a nurse never inquired about their pain during hospitalization. Another compelling investigation revealed that among a sample of conscious patients who eventually died, 50% experienced moderate to severe pain during the last three days of life. This information was obtained from interviews with patient surrogates within five teaching hospitals across the United States (SUPPORT Principal Investigators, 1995).

Regarding hospice settings, McMillan (1996) reported that a group of hospice patients had a mean pain relief score of only 6.3–6.5 on a scale of 1–10 (1 = no relief; 10 = complete relief). Moreover, 42% of the sample reported pain relief scores of 5 or less, whereas only 15% reported pain relief at a level of 9–10 after three weeks of hospice care. In a comparative study, McMillan and Tittle (1995) observed that patients in an inpatient cancer unit only were given 38% of the ordered analgesic dose, whereas hospice patients self-administered 93% of the ordered dose. The investigators also observed that hospice nurses performed more pain assessments and evaluations than inpatient nurses. However, documentation regarding treatment changes and use of nonanalgesic interventions was inadequate for both groups of nurses.

Cancer Pain Knowledge and Attitudes Among Nurses

Variables that could be related to pain management are nurses' knowledge and attitudes about pain. In a random sample survey of registered nurses, Vortherms, Ryan, and Ward (1992) observed overall knowledge deficits, particularly regarding opioids. Using the Wisconsin Pain Initiative (WPI) tool, the mean knowledge score was 56.4% correct and the mean score for opioids was 37.3% correct. Only 16% of the nurses knew that the incidence of psychological dependence in patients with cancer is less than 1 in

1,000 patients. The researchers also noted that caring for patients with cancer was associated with greater knowledge and liberalness about pain.

Using an adapted version of the WPI tool, a study among registered nurses in North Carolina revealed similar results (O'Brien, Dalton, Konsler, & Carlson, 1996). For nurses who had not cared for patients with cancer, the mean knowledge score was 51.2% correct, compared to 59.6% correct for nurses who had cared for at least one patient with cancer in the last six months. Nurses who had cared for patients with cancer also had more liberal attitudes about pain than nurses who had not cared for patients with cancer (O'Brien et al.). Similarly, Brunier, Carson, and Harrison (1995) and Clarke et al. (1996) reported that nurses from hospital oncology units were more knowledgeable about pain than nurses from other hospital units. In a comparative survey, Ryan, Vortherms, and Ward (1994) observed that a group of oncology nurses was more knowledgeable, although not more liberal, about pain than a group of long-term care facility nurses.

However, even among oncology nurses, knowledge deficits have been reported. Ferrell and McCaffery (1997) described serious knowledge deficits regarding morphine and transdermal fentanyl in a sample of nurses who regularly cared for patients with cancer. Specific deficiencies were related to knowledge of equianalgesia chart usage, equianalgesia dosage calculations, and breakthrough dosage calculations. The researchers also noted that knowledge deficits regarding indications, contraindications, and pharmacokinetics of transdermal fentanyl were observed. Similarly, Pederson and Parran (1997) reported that a convenience sample of bone marrow transplant nurses had weak opioid knowledge, particularly regarding adverse side effects. Although overall pain management knowledge was 79% correct, only 62% of the nurses correctly answered that the analgesic dose should be increased when a patient's mucositis pain increased. The majority of nurses also believed that morphine should be discontinued when a patient had nausea, vomiting, and itching (Pederson & Parran).

Fothergill-Bourbonnais and Wilson-Barnett (1992) examined pharmacologic as well as nonpharmacologic pain relief knowledge among a convenience sample of 100 hospice and hospital intensive therapy unit nurses in England. The hospice nurses had significantly more pain knowledge ($p < 0.001$), with a mean of 67.5% correct, compared to the hospital nurses who had a mean of 55.3% correct. However, no significant pain knowledge differences were found related to years of experience. The researchers also observed that hospice nurses perceived the work environment as more conducive to knowledge about pain than intensive-care nurses. In addition, 86% of the nurses reported that basic formal education regarding pain was inadequate, and approximately half of each group incorrectly answered a question about addiction. The literature has suggested that experience with patients with cancer contributes to increased knowledge about pain. Nevertheless, knowledge deficits are prevalent among all nurses, particularly regarding opioids.

Several of the most critical elements of cancer pain management are the objectives and goals for the patient, as well as the characteristics and priorities of different deliv-

ery systems. Conceptually, the hospice principles of support, symptom relief, and total pain control should be emulated continuously in the hospital environment. Moreover, acute-care interventions do not have to be the antithesis of ethically appropriate palliative measures. Within this context, adequate knowledge about cancer pain is imperative for all nurses in various settings who care for patients who are suffering. The analysis described here specifically compared strengths and weaknesses regarding cancer pain knowledge, as well as attitudes about pain between hospice and hospital oncology unit nurses. This survey was part of a larger study that examined knowledge, attitudes, and perceived barriers between these two groups of nurses (Hollen, 1998).

Methods

Sample and Setting

The setting for this study included 7 adult hospital oncology units and 11 hospices within an urban county in a southcentral state. All of the facilities that were identified as having nurses eligible for the study were invited to participate. Respective state associations provided a complete list of hospices and hospitals within the county, and the participating settings were a mixture of public, private, and teaching facilities. The hospices were community-based and primarily provided services to adult patients with cancer who were within homes or long-term care facilities. The hospital oncology units were all within acute-care, inpatient institutions and were determined to be the primary admission units for adult patients with cancer. Capacities of these inpatient units ranged from 14–30 beds. Registered nurses who had worked a minimum of 20 hours per week exclusively within a hospice or hospital oncology unit for at least the preceding six months were included. Inclusion criteria also stipulated that at least 80% of participants' professional practice time involved patient or family care.

Procedure

After receiving permission from participating facilities, nurse managers obtained lists of nurses who met the inclusion criteria. To enhance control, the same investigator delivered the surveys to all eligible nurses' work mailboxes within three consecutive days. However, because of an absence of mailboxes at some facilities, nurse managers distributed the surveys for three of the hospital oncology units. Cover letters attached to the surveys outlined the eligibility requirements, and participants were ensured that responses were voluntary and anonymous. Providing self-addressed stamped envelopes for return to the investigator's address also ensured anonymity. After four weeks, a second distribution of the surveys using the same procedure occurred. The cover letter on the second set of surveys instructed respondents not to complete an additional survey if the first survey had been returned. All of the data for this study were collected in 1997.

Instrument

With permission, the tool used for this study was the **North Carolina Cancer Pain Initiative (NCCPI) survey**. This tool was a modified version of the Wisconsin

Pain Initiative survey, with primary components consisting of knowledge, attitudes, perceived barriers, and demographic information (O'Brien et al., 1996; Vortherms et al., 1992). According to these investigators, experts verified content validity, clarity, format, and style of the survey. Except for the 27-question demographic section, the entire NCCPI survey (56 items) was distributed for this study. In addition, a five-item investigator-developed survey was used to collect data on work setting, age, number of clock hours of pain education within the last two years, personal experience with cancer pain, and requirement within work setting to annually review pain guidelines. The variables chosen were based on the literature review as well as anecdotal experience. The investigators also believed a condensed demographic tool might enhance the response rate.

The knowledge section of the NCCPI survey consisted of 31 items, and for this sample of nurses, the Cronbach's alpha coefficient on the total knowledge test was 0.71. These items were further subdivided into opioids (10 items, $\alpha = 0.61$), scheduling (9 items, $\alpha = 0.61$), and general pain (12 items, $\alpha = 0.21$). For the attitudes subscale, five Likert-scale items ($\alpha = 0.51$) measured liberalness and previously had been reported to have construct validity (O'Brien et al., 1996).

In a previous study, the term liberalness was introduced as referring to a propensity to advocate for complete pain relief, patient control over analgesia, and earlier intervention with analgesia (Cleeland, Cleeland, Dar, & Rinehardt, 1986).

Data Analysis

For this investigation, descriptive and inferential procedures were used, and an alpha level of 0.05 was chosen as the acceptable level of significance. To analyze total knowledge and knowledge subscales, correct answers were assigned a score of 1 and incorrect answers were assigned a score of 0. The higher the score, the more knowledgeable respondents were considered to be regarding pain management. The possible ranges for the knowledge tests were total knowledge (0–31), opioids (0–10), scheduling (0–9), and general pain (0–12). The range of possible scores for the attitudes subtest was 5–22, and the higher the total score, the more liberal the attitudes about pain management were considered to be.

Results

Sample

Of the 140 surveys originally distributed, 64 surveys were returned, giving an overall response rate of 46%. Among the hospice nurses, 30 (53%) of the 57 surveys were returned, and for the hospital oncology unit nurses, 34 (41%) of the 83 surveys were returned. The mean age for the hospice nurses was 45 years ($SD = 10.54$), whereas the hospital nurses had a mean age of 40 years ($SD = 9.32$). Because of missing data from unanswered questions, the sample size regarding age was 29 and 33 for hospice and hospital nurses, respectively. All of the hospice respondents ($n = 30$) reported having at least 1–16 hours of pain education within the past two years, and 47% of these nurses had received more than 16 hours. For the

hospital nurses (n = 33), 76% reported having at least 1–16 hours of pain education; however, only 27% reported more than 16 hours of pain education within the prior two years. One characteristic that revealed considerable differences between the two groups concerned annual review of pain guidelines. Within respective work settings, 48% (n = 29) of hospice nurses, compared to only 13% (n = 32) of the hospital nurses, reported this as a requirement. A personal history of cancer among close friends or family members had a relatively equal distribution between the two groups of nurses.

Knowledge and Attitudes

Hospice nurses ($\bar{X} = 24.71$, $SD = 2.27$) scored significantly higher on the total knowledge test than the hospital oncology unit nurses ($\bar{X} = 20.76$, $SD = 3.77$; $t[60] = 5.09$, $p = 0.0001$) (see Table 1). When reporting total knowledge as a mean percentage of correct responses, the hospice group scored 80%, whereas the hospital group scored 67%. Hospice nurses also scored significantly higher than the hospital nurses on the opioid subscale ($t[61] = 5.52$, $p = 0.0001$) and the scheduling subscale ($t[62] = 3.77$, $p = 0.0004$). However, differences regarding the general pain subscale were not found to be statistically significant. On the opioid, scheduling, and general pain subscales, the hospice group had mean correct responses of 80%, 84%, and 77%, whereas the hospital group had mean correct responses of 57%, 69%, and 74%, respectively.

Regarding attitudes, the hospice nurses also had a significantly higher liberalness score ($\bar{X} = 18.31$, $SD = 1.79$) than the hospital oncology unit nurses ($\bar{X} = 16.94$, $SD = 2.32$; $t[61] = 2.58$, $p = 0.0122$) (see Table 1). Reported as a percentage, the mean liberalness score for the hospice group was 83%, whereas the mean liberalness score for the hospital group was 77%.

Knowledge Item Analysis

When analyzing pooled data for the two groups of nurses, the greatest overall knowledge deficits were related to opioid analgesics. As seen in Table 2, almost 75% of the hospital nurses and more than 40% of the hospice nurses did not know that psychological dependence as a result of legitimate use of narcotic analgesics in patients with cancer occurs in less than 1 in 1,000 patients. However, more than 80% of the hospital nurses and 100% of the hospice nurses were aware that switching to pentazocine in response to morphine tolerance would not be appropriate and increasing the morphine dose would be appropriate.

One striking difference between the two groups was that more than 40% of the hospital nurses compared to only 3% of the hospice nurses did not select “oral” as the preferred route of administration.

Concerning scheduling knowledge (see Table 3), more than 70% of the hospital nurses and more than 40% of the hospice nurses did not know that scheduled administration of analgesia delays the development of drug tolerance and decreases the risk of addiction. Nevertheless, most of the hospital nurses and all of the hospice nurses did know that scheduled, as opposed to PRN, administration of analgesia helps maintain an effective plasma level for more consistent pain control. For general pain items, 68% of the hospital nurses and 59% of the hospice nurses were unaware that if anxiety or depression is alleviated, the intensity of pain will “not always” be decreased. Additionally, 32% of the hospital nurses and 24% of the hospice nurses did not answer “false” when asked if giving patients sterile water is a useful test to determine the reality of pain. For general pain strengths, 100% of both groups of nurses knew that lack of pain expression does not always mean lack of pain, and the most accurate judge of pain is the patient.

Relationship of Personal Background Data With Knowledge and Attitudes

When analyzing pooled demographic data with knowledge and attitudes, only age and the number of hours of pain education revealed any significant differences. For age, nurses older than 40 (n = 37) performed significantly better than nurses 40 and younger (n = 27) on the scheduling subscale ($t[62] = -2.04$, $p = 0.0457$). For scored means related to scheduling knowledge, nurses older than 40 scored 7.19 ($SD = 1.39$), whereas nurses 40 and younger scored 6.41 ($SD = 1.67$). The older nurses also had a higher mean related to liberalness ($\bar{X} = 18.03$, $SD = 2.14$) than the younger nurses ($\bar{X} = 16.92$, $SD = 2.13$), and this difference was statistically significant ($t[61] = -2.02$, $p = 0.0480$).

Regarding pain education, mean scores for total knowledge, opioid, scheduling, and liberalness increased as reported hours of pain education increased. Using ANOVA, the relationship of pain education to opioid knowledge ($F[2,59] = 3.76$, $p = 0.0291$) and liberalness ($F[2,59] = 4.24$, $p = 0.0190$) was statistically significant. For opioid knowledge, Student-Newman-Keuls post-hoc analysis revealed that the significant difference was between nurses who reported having received 0 hours of

Table 1. Total Knowledge, Knowledge Subscale, and Liberalness Scores

Test	Possible Range	Hospice Nurses				Hospital Nurses				t-test/p-value
		\bar{X}	SD	Range	n ^a	\bar{X}	SD	Range	n	
Total knowledge	0–31	24.71	2.27	19–28	28	20.76	3.77	12–29	34	0.0001
Opioid	0–10	8.00	1.34	5–10	29	5.68	1.98	1–9	34	0.0001
Scheduling	0–9	7.57	1.31	5–9	30	6.24	1.50	3–9	34	0.0004
General pain	0–12	9.20	1.18	7–11	29	8.85	1.37	6–11	34	0.2808
Liberalness	5–22	18.31	1.79	14–21	29	16.94	2.32	12–20	34	0.0122

^a Sample sizes vary because of missing data from unanswered questions.

Table 2. Percent of Nurses Answering Opioid-Related Items Incorrectly

Item	Hospital Nurses (n = 34)	Hospice Nurses (n = 30)
The incidence of psychological dependence from legitimate use of narcotic analgesics in patients with cancer is less than 1 in 1,000.	74	41
Suicide rarely occurs from an overdose of analgesics prescribed to control cancer-related pain.	59	28
Adding acetylsalicylic acid or acetaminophen would not be the best action if a patient exhibits morphine tolerance.	53	52
Switching from morphine to another narcotic would not be the best action if a patient exhibits morphine tolerance.	53	10
Adding a tranquilizer would not be the best action if a patient exhibits morphine tolerance.	50	52
The preferred route of narcotic pain relievers for cancer-related pain is oral.	47	3
Changing morphine from oral to IV would not be the best action if a patient exhibits morphine tolerance.	41	3
Constipation will not decrease after repeated administration of narcotic analgesics.	29	10
Increasing the dose of morphine would be appropriate for morphine tolerance if no undesirable effects are observed.	15	-
Switching from morphine to pentazocine would not be the best action for morphine tolerance.	12	-

pain education ($\bar{X} = 5.50$) and nurses who reported more than 16 hours of pain education ($\bar{X} = 7.57$). Likewise, the significant difference for liberalness was between nurses who reported 0 hours of pain education ($\bar{X} = 16.50$) and those who reported more than 16 hours of pain education ($\bar{X} = 18.57$).

Discussion

For overall pain management, opioids, and scheduling, hospice nurses were significantly more knowledgeable than hospital oncology unit nurses. This finding was similar to a British study that revealed that hospice nurses were significantly more knowledgeable about pain than hospital intensive therapy unit nurses (Fothergill-Bourbonnais & Wilson-Barnett, 1992).

In particular, the hospice nurses in the present study were more knowledgeable regarding opioids. One of the most dramatic differences was that more than 10 times the number of hospice nurses than hospital nurses correctly believed "oral" to be the preferred route of analgesic administration. An explanation for this could be related to

Table 3. Percent of Nurses Answering Scheduling-Related Items Incorrectly

Item	Hospital Nurses (n = 34)	Hospice Nurses (n = 30)
Scheduled analgesia delays the development of drug tolerance.	82	53
Scheduled analgesia decreases the risk of addiction.	76	43
Scheduled analgesia minimizes the risk of inadvertent overdosing.	53	20
With scheduled analgesia, pain is less likely to recur before the next dose of analgesic.	24	3
Scheduled analgesia minimizes the likelihood that pain behavior will be reinforced.	24	13
Scheduled analgesia increases the chance that the "stolid" patient will receive adequate pain control.	9	3
Pain is better controlled when analgesics are administered around the clock rather than when needed.	3	-
Scheduled analgesia minimizes anxiety about pain recurrence.	3	7
Scheduled analgesia helps maintain an effective plasma level.	3	-

differences in focus of care between hospices and hospitals. Pain guidelines stipulate that the oral route is preferred, and the least invasive method of pain control should be initiated first (U.S. Department of Health and Human Services, 1994; WHO, 1996). However, ongoing clinical trials are being conducted to determine the efficacy of new analgesics that have emerged since publication of WHO's and the Agency for Health Care Policy and Research's guidelines. Nonoral analgesics also are sometimes unavailable in the presence of impaired gastrointestinal function or unmanageable side effects (Mercadante, 1998).

Congruent with previous investigations (O'Brien et al., 1996; Ryan et al., 1994; Vortherms et al., 1992), the weakest area of knowledge in this study was related to opioids. For both hospice and hospital nurses, one of the most frequently missed opioid items concerned the incidence of psychological dependence. This finding suggests the need for further education regarding differentiation of concepts such as tolerance and addiction. According to pain guidelines, psychological dependence is rare in patients with cancer and should not be confused with physical dependence (WHO, 1996). Knowledge deficits about the use of placebos were another area of concern. More than 20% of the hospice nurses and more than 30% of the hospital nurses believed that administration of a placebo is a useful test for determining the reality of pain. Because of ethical implications as well as the inability to accurately establish the absence of pain, placebos should not be used (McCaffery, Ferrell, & Turner, 1996).

In addition to greater knowledge, the hospice nurses in this study had a significantly more liberal attitude toward pain than the hospital nurses. This finding was in contrast to Ryan et al. (1994) who observed that oncology nurses

were more knowledgeable but no more liberal about pain than long-term care facility nurses. Comparatively, both groups of nurses in the present study were more knowledgeable and liberal about pain than the nurses in the O'Brien et al. (1996) study in which the same survey was used. Although the sample size and methods were different, this comparison suggests that caring for patients with cancer consistently within a specialized oncology setting contributes to greater knowledge and liberalness regarding pain.

With respect to pain education, nurses who reported more than 16 hours were significantly more knowledgeable about opioids and more liberal about pain than those who reported no hours of pain education. This finding is similar to several other investigations that elucidated the benefit of continuing pain education on increased knowledge about pain (Brunier et al., 1995; Vortherms et al., 1992). However, as Vortherms et al. noted, the relationship of increased knowledge and pain education may represent a spiral effect rather than an absolute causal link. Nevertheless, because opioid knowledge was the area of greatest deficit in the present study, even experienced oncology nurses might benefit from pain education.

The apparent advantage of pain education on opioid knowledge is consistent with greater opioid knowledge among hospice nurses. In contrast to the hospital nurses, 100% of the hospice nurses had received at least 1–16 hours of pain education. Furthermore, almost twice as many hospice nurses than hospital nurses reported greater than 16 hours of pain education within the last two years. Although more than three times the number of hospice nurses than hospital nurses were required to review pain guidelines, this variable did not appear to significantly affect knowledge or attitudes. Perhaps pain education, which incorporates additional teaching strategies, is more important than review of pain guidelines alone.

Study Limitations

One limitation of this study was the reliability of the tool. Although internal consistency of the overall knowledge test was 0.71, internal consistency of the opioids,

scheduling, general pain, and attitudes subscales was low at 0.61, 0.61, 0.21, and 0.51, respectively. As Vortherms et al. (1992) reported, the attitudes subscale that measured nonliberalness may lack sensitivity because of the small number of questions. Additionally, the sample for this study was voluntary, and within several of the hospitals, nurse managers delivered the surveys when no mailboxes were available. These factors may have contributed to selection bias. The sample also was in a populated urban location that may have limited the generalizability of these results to nurses in rural areas.

Implications for Nursing

This investigation only addressed basic pharmacologic pain management knowledge and attitudes. More research with larger sample sizes is needed regarding nurses' nonpharmacologic pain management knowledge, pain management behavior, and outcomes of pain education in different settings. The wide range of scores in this study, particularly among the hospital nurses, suggests that more knowledgeable nurses should be identified as mentors. This could be beneficial on the oncology unit, as well as other areas of the hospital where overflow patients with cancer are sent. Regular pain classes also should be offered to address rapidly developing new knowledge. In the struggle against cancer pain, the nurse's knowledge base can serve as a very powerful tool in different settings. Regardless of the setting, patients with cancer deserve the highest form of pain control. Hence, the tenets of ethical comfort care must pervade all healthcare delivery systems, and leaders within these systems should facilitate the acquisition, as well as application, of appropriate pain management beliefs.

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References

- Brunier, G., Carson, M.G., & Harrison, D.E. (1995). What do nurses know and believe about patients with pain? Results of a hospital survey. *Journal of Pain and Symptom Management, 10*, 436–445.
- Clarke, E.B., French, B., Bilodeau, M.L., Capasso, V.C., Edwards, A., & Empoliti, J. (1996). Pain management knowledge, attitudes, and clinical practice: The impact of nurses' characteristics and education. *Journal of Pain and Symptom Management, 11*, 18–31.
- Cleeland, C.S., Cleeland, L.M., Dar, R., & Rinehardt, L.C. (1986). Factors influencing physician management of cancer pain. *Cancer, 58*, 796–800.
- Ferrell, B.R., & McCaffery, M. (1997). Nurses' knowledge about equianalgesia and opioid dosing. *Cancer Nursing, 20*, 201–212.
- Fothergill-Bourbonnais, F., & Wilson-Barnett, J. (1992). A comparative study of intensive therapy unit and hospice nurses' knowledge on pain management. *Journal of Advanced Nursing, 17*, 362–372.
- Heath, D.L., & Reid-Finlay, M.M. (1998). A conceptual framework for nursing management of pain. *Contemporary Nurse, 7*, 68–71.
- Henkelman, W.J., & Dalinis, P.M. (1998). A protocol for palliative care measures. *Nursing Management, 29*, 40, 42, 45–46.
- Hollen, C.J. (1998). *Knowledge and beliefs about cancer pain management in hospice and hospital oncology nurses*. Unpublished master's thesis, University of Oklahoma Health Sciences Center, Oklahoma City.
- Hospice Association of America. (1998). *Hospice facts and statistics*. Washington, DC: Author.
- Ingham, J.M., & Foley, K.M. (1998). Pain and the barriers to its relief at the end of life: A lesson for improving end of life health care. *Hospice Journal, 13*, 89–100.
- Massey, R.U., & Hurlzeler, R.J. (1998). Hospice and palliative care. *Cancer Therapeutics, 1*, 117–123.
- McCabe, M.J. (1997). Ethical issues in pain management. *Hospice Journal, 12*, 25–32.
- McCaffery, M., Ferrell, B.R., & Turner, M. (1996). Ethical issues in the use of placebos in cancer pain management. *Oncology Nursing Forum, 23*, 1587–1593.
- McMillan, S.C. (1996). Pain and pain relief experienced by hospice patients with cancer. *Cancer Nursing, 19*, 298–307.
- McMillan, S.C., & Tittle, M. (1995). A descriptive study of the manage-

ment of pain and pain-related side effects in a cancer center and a hospice. *Hospice Journal*, 10, 89–107.

Mercadante, S.G. (1998). When oral morphine fails in cancer pain: The role of alternative routes. *American Journal of Hospice and Palliative Care*, 15, 333–341.

O'Brien, S., Dalton, J.A., Konsler, G., & Carlson, J. (1996). The knowledge and attitudes of experienced oncology nurses regarding the management of cancer-related pain. *Oncology Nursing Forum*, 23, 515–521.

Oncology Nursing Society. (1998). Cancer pain management. *Oncology Nursing Forum*, 25, 817–818.

Paice, J.A., Mahon, S.M., & Faut-Callahan, M. (1991). Factors associated with adequate pain control in hospitalized postsurgical patients diagnosed with cancer. *Cancer Nursing*, 14, 298–305.

Pederson, C., & Parran, L. (1997). Bone marrow transplant nurses' knowledge, beliefs, and attitudes regarding pain management. *Oncology Nursing Forum*, 24, 1563–1571.

Ryan, P., Vortherms, R., & Ward, S. (1994). Cancer pain: Knowledge, attitudes of pharmacologic management. *Journal of Gerontological Nursing*, 20, 7–16.


SUPPORT Principal Investigators. (1995). A controlled trial to improve care for seriously ill hospitalized patients: The study to understand prognosis and preferences for outcomes and risks of treatments (SUPPORT). *JAMA*, 274, 1591–1598.

Twycross, R.G. (1990). Terminal care of cancer patients: Hospice and home care. In J.J. Bonica (Ed.), *The management of pain* (pp. 445–455). Philadelphia: Lea and Febiger.

U.S. Department of Health and Human Services. (1994). *Management of*

cancer pain: Clinical practice guideline no 9. (AHCPR Publication No. 94-0592). Rockville, MD: Author.

Vortherms, R., Ryan, P., & Ward, S. (1992). Knowledge of, attitudes toward, and barriers to pharmacologic management of cancer pain in a statewide random sample of nurses. *Research in Nursing and Health*, 15, 459–466.

World Health Organization. (1996). *Cancer pain relief: With a guide to opioid availability*. Geneva, Switzerland: Author. 

For more information . . .

- ▶ The American Alliance of Cancer Pain Initiatives
<http://www.aacpi.org/>
- ▶ ACP Home Care Guide—Cancer Pain
http://www.acponline.org/public/h_care/3-pain.htm
- ▶ NCI: Relief from Cancer Pain
http://cancernet.nci.nih.gov/clinpdq/fulltext/GET_RELIEF_FROM_CANCER_PAIN.html

These Web sites are provided for information only. The hosts are responsible for their own content and availability. Links can be found using ONS Online at www.ons.org.

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At the Dartmouth-Hitchcock Medical Center, we've been "doing good" for over 100 years. Today, we're over 5,000 professionals strong, the largest tertiary care medical teaching facilities in New Hampshire. Through a network of unique collaborations and alliances, we provide advanced, quality care to over a quarter of a million people in northern New England. People from all walks of life, in all seasons of life. Right now we're looking for more good people to join us in the following area:

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