Special Article

Managing Cancer Pain: Content and Scope of an Educational Program for Nurses Who Work in Predominantly Rural Areas

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Abstract

A great deal of effort is being expended at national, state and local levels to improve cancer pain management in the United States. The fact that cancer patients continue to experience "unrelieved pain" is of concern to professional caregivers and families, as well as to the patients themselves. This article describes the content and scope of an educational program for nurses who work in predominantly rural areas. Content of the program and the evaluation process are described in detail in order to provide other caregivers with a model that could be implemented in similar settings. J Pain Symptom Manage 1995;10:214–223.

Key Words

Cancer pain, patient education, professional education, rural practice

Introduction

Chronic pain is a problem for 60–90% of patients with advanced cancer and as many as 40% of patients who are not in the terminal stage of their illness.\(^1,2\) The charge to all health professionals is to measure and manage pain in as many dimensions as possible in order to reduce the pain or help patients cope with it effectively.\(^3,6\) Although health-care professionals have gained a better understanding of cancer-related pain and its treatment during the last decade, pain continues to challenge patients, families, and health-care providers, especially nurses, who practice in rural areas. In many rural areas, nurses have received little education related to pain management\(^7,8\) and have limited resources to help themselves improve their pain management skills. As a result, these nurses lack in-depth knowledge of pharmacology and may not be taking advantage of the range of cognitive–behavioral interventions that are available to assist patients to cope with pain.

Attempts to increase nurses' knowledge of cancer pain assessment and management typically include half-day or all-day workshops.
These efforts, while well planned and effective in increasing knowledge, provide limited opportunities for problem solving or reinforcement. They usually address content in lecture or seminar, but often do not have the opportunity to include time for patient assessments or team discussions. In limited situations, week-long workshops have been implemented; however, only one has been designed primarily for nurses in advanced practice, and it only accommodated approximately one nurse from each of the states. This workshop was not intended to focus on problem-solving for nurses with associate degree or baccalaureate educations, which is the educational level of many nurses who care for patients in predominantly rural areas. Recently, in one hospital setting, nurses with a variety of educational backgrounds were enrolled in a 40-hr course with classroom instruction and clinical application. Similar programs for nurses who work in home health and hospice have not been reported.

Although coordinated-care programs for pain management often exist in settings closely affiliated with large medical centers, similar programs have not been established to monitor the care of patients who reside in underserved rural areas. Patients in these areas, not unlike the inner-city poor, may have less education and more difficulty with the complexities of pain management. They are likely to be geographically isolated as well as economically deprived, limiting their access to expert care. As a result, they often require more care in the home. They also constitute one segment of an ever-increasing population of elderly persons who, because of age as well as disease, require special supervision during treatment.

This paper describes a model that was implemented to educate nurses who work with cancer patients in predominantly rural states. This program differed from previous models in its approach to participation and the strategies it used to increase nurses' knowledge, assist them in examining and evaluating their attitudes toward cancer pain assessment and management, provide them with opportunities to practice decision making and psychomotor skills, and promote community-based reinforcement for utilization of those skills. These strategies included seminar discussions; participation in hospital rounds with pharmacists, oncologists, and anesthesiologists; direct physical and psychosocial assessment of patients; and continuous interaction with the multidisciplinary educational teaching team. During their interaction with the team, they were able to discuss patient problems encountered at home during the workweek. The program provided state-of-the-art information on pain management to the participants who could, in turn, use that information to care for patients in home health and hospice settings.

The specific goals of the program were

1. to implement an educational program designed to increase nurses' understanding of pain assessment, pharmacologic and nonpharmacologic therapies, ethical and regulatory issues, and the benefits of a coordinated-care program in predominantly rural areas; and
2. to evaluate the effectiveness of the program in (a) changing the knowledge, attitude, and behavior of nurses who work with cancer patients in rural communities, and (b) improving patients' satisfaction with pain management and enhancement of their quality of life.

Implementing the Program

Recruitment: Nurses

The Nursing Director of the statewide Area Health Education Centers (AHEC) program * queried nursing directors in each of the nine AHEC regions about interest in the program. Directors immediately responded to the first query with names of 21 nurses interested in participating. Applicants were expected to be registered to practice in North Carolina; employed full-time in community health, home health, or hospice; providing care primarily to cancer patients living in rural areas; willing to enroll up to ten patients in the evaluation of the program; and able to commute to the medical center 1 day per week for 6 weeks.

Thirty nurses ultimately were selected to enter the program on the assessment and management of cancer pain. Participants were enrolled in pairs, according to geographic location, in order to increase community impact and provide each nurse with a colleague.

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*A statewide program established to provide high-quality education for health professionals while serving as a bridge between academic institutions and service institutions in all of the state's counties.*
with whom she could interact on the local level. In order to minimize cost (not born by the participants), pairs of nurses were asked to share travel arrangements and lodging.

The nurses were enrolled in the program in cohorts of ten (for a total of three cohorts); 29 completed the program. One nurse dropped out after attending two sessions because of illness and concern that she would not be able to follow ten patients. Two of the 29 nurses who participated in the program were African-American; this proportion is comparable to the racial distribution of nurses in the state. The only male nurse who expressed interest was unable to participate.

Recruitment: Patients

Prior to the program, patients who were to be followed by the nurses in the program were told that they were being asked to assist with the implementation and evaluation of a program on cancer pain management. They were told that they would be asked to answer questions about their pain and its management, and that they would be followed for at least 18 weeks as part of the evaluation of the program. The patients were informed that they would continue with their usual clinical treatment for the first 5 weeks, but that in a few weeks their nurse would be entering an educational program on pain management. The patients were told that as a result of more in-depth understanding of the assessment and management of pain, the nurse might ask them to become a more active participant in their own pain management program. Patients were asked to sign a consent form indicating that they understood that, as the nurse learned to use the supportive care model, they would implement the model in their home setting.

Each nurse who enrolled in the program was asked to collect information from ten patients at the following times: 5 weeks prior to the beginning of the program, immediately prior to the program, at the end of the program, 5 weeks after the end of the program, and 10 weeks after the end of the program. One hundred seventy-seven patients (N = 177) initially agreed to participate in the evaluation of the program; 13 refused to participate, for a variety of reasons. Ninety-three percent of the patient participants had a diagnosis of cancer; nine patients with acquired immune deficiency syndrome (AIDS) who were followed by nurses in the program also were included. Seventy-nine of the participating patients were male, and 98 were female. The average number of patients followed by each nurse was six. Immediately prior to the program, 139 patients were being followed; at the end of the program, 75 were still alive and being followed. At the time of the first follow-up, only 36 patients were still alive and/or being followed; at the second follow-up, only 22 of the original patients were still alive.

To increase support for the program, physicians in the community received a letter telling them about the program, the nurses' participation, and the patients' participation in the evaluation of the program. They were encouraged to work with the nurses to improve the care of their patients with pain.

The Model

The program taught nurses who care for patients living primarily in rural communities to implement a pain management program using the Sloan-Kettering Supportive Care Program model, which was pilot tested at University of North Carolina (UNC) Hospitals hematology-oncology clinic. The pain management program uses both formal team meetings and informal communication to improve patient management. Arrangements for implementation of the program were handled by one faculty member from the school of nursing and a program assistant. Faculty for the program included a nurse pain-assessment specialist, hematologist-oncologist, neurologist, anesthesiologist, psychologist, pharmacy clinical specialist, nurse family specialist, nurse ethicist, and consultant from the state board of nursing.

As adapted for rural North Carolina, the pain management model and educational program included (a) formal presentation of content on assessment and evaluation of new patient problems; (b) review of guidelines for pharmacologic and nonpharmacologic therapy, (c) reevaluation, clarification, and change or support of preexisting treatment plans, and (d) collaboration with a team of pain management experts. It also used informal telephone communication with experts at the medical center and a telecommunication conference that extended the resources of the medical center to the community.
Table 1
Learning Experiences for Nurses

<table>
<thead>
<tr>
<th>Week</th>
<th>Pair 1</th>
<th>Pair 2</th>
<th>Pair 3</th>
<th>Pair 4</th>
<th>Pair 5</th>
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<td>1</td>
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A, outpatient; B, anesthesiology; C, inpatient; D, assessment; E, pharmacology; and X, orientation: lectures/seminar.

Implementation

Nurse participants traveled from nine counties and 20 home health and hospice agencies throughout the state to the medical center 1 day per week for 6 weeks. They were provided two texts,** a notebook of relevant articles, patient- and treatment-focused videotapes published by a variety of pharmaceutical companies, pain assessment kits and tools provided by pharmaceutical companies, and a physical-assessment videotape developed by a neurologist and nurse educator who were faculty in the program.

On the first day of the educational program, activities included lectures, demonstrations, and seminar discussions (Appendix A). Learning modules for the ensuing 5 weeks were organized to permit pairs of nurses to rotate through five clinical experiences in various hospital-based settings: (a) outpatient oncology, (b) anesthesia-based pain management, (c) inpatient oncology, (d) assessment and management of the cognitive-behavioral-ethical dimensions of pain, and (e) pharmacological therapy. Table 1 depicts modular rotations.

The nurse trainees learned how to take a pain history and perform a physical examination for patients demonstrating pain behavior or complaining of pain. They made rounds with the pharmacist who was troubleshooting specific patient problems, and they practiced equianalgesic conversions in order to increase their knowledge of the clinical pharmacology of pain management. During the inpatient experience, they used a variety of assessment tools to interview patients. Assessments were followed by discussion of both nonpharmacologic–cognitive-behavioral therapies (such as education, relaxation, distraction, and massage) and the role of family as the social context for pain behavior and response to treatment. In addition to participating in inpatient acute pain management rounds with the anesthesiology pain management team, pairs of nurses observed epidural catheter placement and, when possible, assisted with care of the catheter.

Each day concluded with participation in informal discussion of barriers to pain management. Barriers discussed included patient, family, and health professional concerns regarding addiction and ethical dilemmas associated with patient and professional biases and regulatory issues. Case studies were included as a teaching–learning strategy.

As the nurses learned how to take in-depth pain histories and perform physical assessments of various types of pain problems, they were encouraged to use those skills in their own practice settings. They also were encouraged to assist patients to use nonpharmacologic–cognitive-behavioral therapies, such as education, relaxation, distraction, and massage, based on an understanding of the multiple factors affecting the pain response. They were encouraged to assume responsibility for assisting patients and families to make decisions about the selection of medications, dose, and time and route of administration from a range of choices ordered by the physician.

Throughout the program, nurses were encouraged to evaluate patients’ satisfaction with current pain management and identify areas of management in need of adjustment. They were encouraged to use information collected in both the initial and subsequent assessments. The full range of patient interventions is summarized in Table 2. During the 5-week period, interventions varied according to the patients’ individual needs and discussion of the patients’ problems with physician(s). Nurses were encouraged to chart information on patients’ pain problem(s) and the nature of care given.

Throughout the 6 weeks of the educational program and thereafter, nurses were encour-
Table 2
Patient Interventions

- Teaching the patient and/or family how to monitor and adjust medications within the guidelines prescribed by the physician
- Teaching the patient and/or family how to monitor and use nonpharmacologic therapies
- Teaching the patient and family how to monitor and care for subcutaneous, intravenous, or epidural medication and radiation administration sites
- Assisting the patient and/or family to use previously used or new strategies to cope with the impact of pain and its treatment on the individual and/or the family
- Assisting the patient and/or family to use a variety of community resources—pharmacies, home health, hospice, and social service—effectively
- Assisting the patient and/or family to choose comfortable and ethical decisions related to the holistic nature of the pain experience

aged to call the coordinator of the education program or members of the educational team regarding difficult pain management problems. The coordinator (or her assistant) received these calls, discussed the problem(s) with the member of the educational team who was best qualified to answer the question or provide suggestions, and then returned the suggestion to the nurse. Physicians who were caring for patients followed in the program also could call members of the educational team for consultation. This activity was possible via an existing dedicated telephone communication system available to physicians throughout the state.

One year after the end of the program for the third cohort, an interactive telecommunication program was broadcast throughout the state to all of the program participants and their colleagues. Faculty who had participated in the education program reinforced course information, provided up-to-date information, and encouraged questions regarding current patient care problems.

Program Evaluation

Evaluation of program effectiveness is being achieved in a number of ways. Participating nurses completed a course evaluation on the last day of the program. They also completed inventories of their knowledge, attitudes, and behavior, and a measure of their expectations for change in practice, at the following intervals: 5 weeks prior to the program, immediately prior to the program, at the completion of the program, 6 months after the end of the program, and 12 months after the end of the program. Chart audits were performed to provide evidence of practice behaviors; these audits were performed 5 weeks and immediately prior to the beginning of the program, at the end of the program, and 5 and 10 weeks after the end of the program. A final audit was performed on a new patient sample 6 months after the end of the program. Information on patient and family goals for treatment, patient pain intensity and medication use, patient satisfaction, and quality of life was collected from patients and families at the same time periods, excluding the 6-month follow-up.

Statistical analysis of the nurse and patient data is underway. An overview of these data is presented here to suggest the value of this educational model.

In an evaluation of the educational program at the end of the 6-week experience, nurse participants either agreed or strongly agreed that the program had met the course objectives. They commented that the program “taught (us) to look at the family situation more closely,” “was practical,” and helped “me to look at regulatory issues that are uncomfortable for most professionals and issues most of us avoid until too late.” They agreed that they had become more familiar with pharmacologic and nonpharmacologic therapy. Participants reported that resources were available to enable them to observe or assist with epidural catheter dressing changes. They also performed in-depth physical and psychosocial assessments and examined their attitudes toward the assessment and management of pain related to cancer. Participants noted that traveling to the medical center represented a large commitment for them and the agencies for whom they worked. They were very positive about the interaction with the faculty in the program, but felt that a program offered closer to home would have permitted them to focus on more-thorough implementation of what they learned sooner.

Since the end of the program, many of the nurses have reported that they have experienced change in their attitudes and their practice because of the program. In their letters
nurses reported feelings of "success," a sense of increased self-confidence, and growth in decision-making skills. Many of them continue to comment on the value of the program to their practice. Evidence of change in the participants' practice is more noticeable 6 months after the end of the program than it was 2 months after the end of the program. For example, nurses have taken on new consulting roles with nursing and medical colleagues in private practice and with staff in nursing homes. Because most of these nurses often work in areas with limited personnel resources, it has taken time for them to address the work responsibilities other than pain management that accumulated while they were away from their regular jobs, to communicate with their colleagues, and to plan and implement in-service education programs.

Summary data, describing how the program impacted community practice, were collected at the 6-month follow-up (see format in Appendix C). Eighty-one percent of the nurses reported that inadequate time was a major barrier to implementation of the knowledge and skills gained through the program; 50% of the nurses reported that resistance or lack of support from physicians, peers, and other professionals also was a barrier. Future efforts to change cancer pain management practice should be extended to include all members of the pain management team. It is particularly important that these efforts include physicians and pharmacists in order to reduce further barriers to good management.

The positive impact of the educational program on practice is evident in information collected from patient charts throughout the program. Two hundred and ten charts were available at the beginning of the program; 184 patient charts were available for review at the end of the program; and 161 patient charts were reviewed at 5 weeks and 10 weeks after the end of the program. Charts for an additional 92 patients, whom the nurses were not able to follow, were reviewed during the 20-week evaluation period. Chart data have been collected from an additional 298 patients 6 months after the end of the educational program. Findings demonstrate change in the documentation of assessment and treatment of the multiple dimensions of pain, including changes in documentation of objective pain ratings (visual analog scales), descriptions of specific and/or patterns of pain complaints, use of pharmacologic and nonpharmacologic treatment, follow-up evaluation of medications, and use of pain-related consultants. In one setting, guidelines for chart documentation have been updated.

As suggested by the decreasing number of patients followed over time, patient follow-up was more difficult than anticipated, primarily because many of the patients did not live very long. One-fourth of the patients followed by the first cohort of nurses died before the first 5-week follow-up; only two patients followed by two hospice nurses in the second cohort lived as long as 5 weeks after the end of the program.

Conclusion

Statistical analysis of the information gathered from nurses, patient charts, and patients will provide detailed information regarding the effectiveness of the program in changing the knowledge, attitude, and behavior of nurses and patient outcomes. The preliminary review of these outcomes is extremely favorable. Although the nurses who participated in the program are quick to state that the great value of what they learned and the effect that it will have on their practice is not easily measured, it is expected that formal analysis of the data will contribute to increased knowledge of the effectiveness of educational programs such as this one and to the development of new questions related to barriers to practice change. It is clear, however, that as providers integrate new pain management techniques into their practice, more patients will report greater satisfaction with their care and improvement in their quality of life.

Acknowledgment

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References

3. Brescia FJ. An overview of pain and symptom


Appendix A: Outline of Activities

Week I
A. Orientation to the Supportive Care Model of cancer pain management
B. Lecture-discussion–demonstration

Pathophysiology of cancer pain
Pain assessment and measurement
Interventions with anesthesia
Physical examination of the pain patient
Pharmacology of pain management

Weeks II–VI
Lecture-discussion (1 hour/week):
- Family assessment
- Ethical issues
- Regulatory issues and pain
- Biobehavioral interventions or depression, illness behavior

Examples

Experience A. Outpatient Clinic
Each nurse will review the protocol for pain assessment and management and the pain assessment instruments: s/he will then, when possible, take a pain history(s), perform physical examination(s), and family histories following the guidelines provided. The nurse will then discuss her findings with the physician educator.

Experience B. Anesthesia Pain-Therapy Program
Each nurse will spend 2 hr rounding with the Anesthesiology Postoperative Pain Service. During this time they will observe and participate in the day-to-day management of patients receiving a variety of epidural infusions with catheters in the thoracic or lumbar areas. Instruction and practice with epidural catheter inspection, aspiration, testing, and dosing will be provided. The remainder of the day will be spent in the Anesthesiology Pain Clinic, to observe epidural catheter inspection, aspiration, testing, and dosing will be provided. The remainder of the day will be spent in the Anesthesiology Pain Clinic, to observe epidural catheter placement and techniques of neural blockade, to discuss the care of the epidural catheter with the patient, and to observe the multidisciplinary approach to the management of chronic pain problems.

Experience C. Inpatient
Each nurse will review the protocol for pain assessment and management and the pain assessment instruments: s/he will then take a pain history(s), perform physical examination(s), and family histories following the guidelines provided. The nurse will then discuss her findings and recommendations with the nurse educator.
Experience D. Pain Clinic

Each nurse will interview patients being followed by the University of North Carolina (UNC) Hospitals Pain Service. During this time they will have the opportunity to observe and practice physical examination of the patient with pain, observe interviews, and/or participate in discussion of factors impacting on the pain experience such as anxiety, depression, or illness behavior; discuss community resources available/needed for pain management; and participate in discussions regarding the selection of analgesics and adjuvant pharmacologic agents. Each nurse will attend the regularly scheduled UNC Hospitals Pain Conference.

Experience E. Pharmacology Rounds

Each nurse will round with a member of the pharmacy pain service, attend patient controlled analgesia (PCA) rounds, focus on calculation of equianalgesic drug doses, and discussion rationale for adjuvant therapy.

HOMEWORK: Throughout the learning experience, all of the nurse participants will be asked to review the lay literature (magazines, newspapers) and view TV, noting any reference to cancer pain and/or pain management and bringing article(s) for discussion during the final week of the experience.

Appendix B: Excerpts of Letters

From the nurses:

- "our agency has developed a new 'Skilled Nursing Visit Report' form; it includes a 0-10 pain scale so that pain assessment is done in the same manner on every unit."
- "the program "has made us aware of other modalities that can be implemented to supplement the pharmacologic interventions."
- "has improved my awareness of emotional factors that go along with pain."
- "a good knowledge base from which we can begin to increase our active involvement in better controlling our patients' pain problems. It has also made us aware of adaptations that need to be implemented regarding our documentation of pain as well as the patient's response."
- "until attending the Pain Management program I had no idea there was a stepwise pro-

gram to attain pain control. To me, it was like a game of darts, hit or miss."
- "on my own nursing practice . . . I have been offered a Resource Nurse position."
- "a great deal of informal sharing of information has taken place . . . where specific pain problems and situations are discussed."

From their supervisors:

- "clients we are serving . . . have experienced improved comfort levels."
- "she verbalizes new ideas in pain control; she appears more confident in her working knowledge of these areas."
- "our physicians and Board of Directors feel this has helped our organization to increase in knowledge to offer our patients the best and most appropriate pain management."
Appendix C: Pain Management Activities Questionnaire

1. In the PAST SIX MONTHS, do you have either a new job or different responsibilities in the same agency? Please describe: 

2. If you are currently seeing patients, what is your patient load? Please give a number ________
   Of that number, how many currently have pain? ________

3. The accompanying chart lists two groups of activities, those you may have performed within the PAST MONTH (A–K.), and those you may have performed within the PAST SIX MONTHS (L–N.). For column 1, please indicate the number of times you performed each activity. For columns 2 and 3, please PLACE A CHECK for all that apply to you. For columns 4, 5, and 6 ONLY, please use the following code:
   0 = Not important
   1 = Minimally important
   2 = Somewhat important
   3 = Moderately important
   4 = Very important
   5 = Extremely important

4. In the PAST SIX MONTHS, what barriers interfered with the performance of your activities? Please check all that apply:
   ______ Not enough time/workload too great
   ______ Not enough support/encouragement from physicians
   ______ Not enough support/encouragement from peers/supervisors
   ______ Direct resistance to activities from physicians
   ______ Direct resistance to activities from peers/supervisors
   ______ Resistance from physicians
   ______ Resistance from patients
   ______ Resistance from other professionals, i.e.,
   ______ Own abilities/skills/information inadequate to perform activities
   ______ Behavior too dependent on others’ assistance
   ______ Other (please list): 
   ______ Not applicable

Comments: 

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<th>Activity</th>
<th>How often in the past month?</th>
<th>Which do you intend to do?</th>
<th>Which do you expect to be able to do?</th>
<th>How important is each activity to your &quot;boss&quot;?</th>
<th>How important is each activity to your peers?</th>
<th>The benefits to the patient are</th>
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<td>A. In-depth patient pain assessment after initial pain assessment</td>
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<td>B. Equianalgesic conversions of analgesics</td>
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<td>C. Demonstrate new ideas in practice</td>
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<td>D.</td>
<td>Follow-up telephone calls to cancer patients regarding pain management</td>
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<td>Communication with hospitalized patients regarding pain management</td>
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<td>Discussion with physician of need for change in analgesics</td>
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<td>G.</td>
<td>Discussion of need for change in treatment practices with physician</td>
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<td>Telephone calls to pharmacists regarding prescription problems</td>
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<td>I.</td>
<td>Acted as a consultant for peers</td>
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<td>Other (Please describe)</td>
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<td>Taught in-service education program for RNs on pain management</td>
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<td>Consultation with pain experts</td>
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