

# Institutionalizing Effective Pain Management Practices: Practice Change Programs to Improve the Quality of Pain Management in Small Health Care Organizations

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**Abstract.** The Resource Center of the American Alliance of Cancer Pain Initiatives (AACPI) provided templates, faculty, and ongoing consultation to assist seven state pain initiatives to implement programs to improve pain management practices. A total of 113 health care organizations participated. Each organization committed to support a team of 2-3 staff through a 10-month pain quality improvement process, which included a site visit, two educational conferences, pre- and post-program analyses of the organizational structures in place to support pain assessment and management, quality improvement work plan development, and patient survey data collection. Post-program results showed statistically significant increases in the presence of structural elements that are critical to effective pain management, as well as statistically significant, though modest, decreases in the percentage of patients who reported pain of any severity, and specifically moderate to severe pain, in the previous 24 hours. The largest changes occurred in long-term care facilities. Nevertheless, the percentage of patients in moderate to severe pain remained unacceptably high.

## Key Words

Pain, quality improvement, long-term care, home health, organizational change

## *Running Title*

Programs to Improve the Quality of Pain Management

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## Introduction

More than a decade has passed since the American Pain Society (APS) Committee on Quality Assurance Standards first articulated standards to guide efforts to improve the quality of pain management.<sup>1</sup> In his eloquent editorial prelude to the publication of these standards, Max asserted that education alone is not enough to change practice and that institutions need to put structures in place to make pain “visible,” increase clinician accountability for pain relief, and to make the necessary tools readily available.<sup>2</sup> The AHCPR acute and cancer pain guidelines gave impetus and visibility to the importance of pain quality improvement efforts.<sup>3,4</sup> In 1995, the APS Quality of Care Committee reformulated the standards as guidelines which articulated the processes that are key to improving the quality of pain management: ensuring that unrelieved pain is recognized and promptly treated, making information about pain assessment and management readily available in clinical practice, promising patients attentive care for pain, implementing policies and safeguards for the use of analgesic technology, and examining outcomes of care for pain with a quality improvement process.<sup>5</sup>

In 1997, the two of the authors (JLD and PHB) and their colleagues at the University of Wisconsin-Madison Medical School engaged the Joint Commission on Accreditation of Health Care Organizations (JCAHO) in a collaborative project to integrate pain assessment and management into the standards they use to accredit the nation’s healthcare facilities.<sup>6,7</sup> The new standards took effect in January 2001. The authors and their colleagues also engaged in two nationwide projects to improve the quality of pain management. One focused on postoperative pain in hospitals.<sup>8</sup> Another, the subject of this article, targeted small health care organizations, including long-term care facilities, home health agencies, and community hospitals.

## ***Challenges of the target health care settings***

Long-term care is a heavily regulated environment, with particular restrictions on the use of psychoactive medications. Certified nursing assistants, who receive little or no information about pain assessment or treatment in their training, provide much of the care. Staff and administrative turnover is high.<sup>9,10,11</sup> At a minimum, 40% of patients have daily pain.<sup>12,13</sup> Because of this high prevalence, staff may be desensitized to pain and pain behaviors and may not view pain as a problem requiring care. Residents may believe persistent pain is not treatable, they should not ask for help for pain, their reports of pain will not be believed if they do not have a physical deformity, and analgesic use is likely to lead to addiction.<sup>14</sup> The most persistently identified challenge and need is pain assessment and treatment in residents with cognitive impairment.<sup>15,16,17,18,19,20,21</sup>

The home care industry has been in a state of great and constant change, with progressive growth in the decades following the 1960’s and explosive growth in the mid 1990’s. However, from 1997 to 2002, there was a 35% decline in the number of home care agencies.<sup>22</sup> The decline was in part a consequence of the Balanced Budget Act of 1997, which phased in an interim payment system designed to curtail costs in preparation for transition to a prospective payment system in late 2000.<sup>23</sup> The resultant financial pressure, coupled with the ongoing trend for hospitals to discharge patients earlier has added to the intensity and complexity of care in this setting.<sup>24</sup>

There are unique demands for pain management in the home health setting. The clients are able to exercise a greater degree of control, but also carry a greater degree of responsibility for managing their health care. Patients can more easily control their analgesic use and avail themselves of alternative therapies and home remedies.<sup>25</sup> Pain management in the home care setting can place significant demands on the patient and caregivers.<sup>26</sup> It is rare for home health

care agencies to provide specific training of nursing staff to care for pain.<sup>27</sup> It is not enough for home care nurses to simply provide information; they must also provide ongoing coaching and support for these complex needs.<sup>28,29</sup>

There are many elderly in home care, with an attendant high prevalence of chronic pain.<sup>25</sup> Studies in Canada and Italy suggest that 39-76% of home care patients have daily or frequent pain.<sup>30,31</sup> Chronic pain is a catch-all term for many varied syndromes that are often difficult to treat, and indeed often are undertreated.<sup>32</sup> Nurses providing home care must manage all of these challenges with a delicate balance of interventions based on clinical assessment and management of pain; effective communication with the patient, family, physicians and the rest of the health care system; and a clear understanding of the ethical system and values of the patient and family as well as the nurse's own.<sup>33</sup>

In hospitals, pain is not only common after surgery<sup>34</sup>, it is generally highly prevalent throughout the inpatient setting. One large cohort study reported that 47% of general medicine inpatients had moderate or severe pain.<sup>35</sup> Hospitals are likely to have a diversity of units and functions, with the resultant need to have experts and resources available on individual units. The complex procedures that are an inherent part of the hospital environment necessitate the creation of multiple and specific policies and procedures, including those for pain assessment and management. Critical pathways, pre-printed physician orders, infusion policies, algorithms and pocket guidelines are just a few examples.<sup>36</sup> At the time of onset of the JCAHO pain standards, hospitals may not have had in place systems to screen for or comprehensively assess pain, or to provide pain education for patients and families.<sup>37</sup>

### ***Institutionalizing Pain Management***

A comprehensive approach that incorporates the concepts of quality improvement initiatives can impact clinical practice and patient outcomes.<sup>38,39</sup> Such initiatives should include forming an interdisciplinary pain

quality improvement team and plan, data collection and analysis, establishing accountability for pain relief, staff orientation and ongoing education, giving staff ready access to reference materials, developing pain policies and procedures, instituting mechanisms to promise patients attentive care for their pain, and providing patient and family education.<sup>40</sup> These processes support the "institutionalization" of pain management, which Gordon defined as the incorporation of "basic principles of pain assessment and treatment into patterns of daily practice, including documentation systems, policies and procedures, standards of practice, continuing education, and quality improvement programs."<sup>41</sup>

While education alone is not enough to change practice, any pain quality improvement program must include an educational component. Numerous studies have described the inadequate assessment and treatment of pain by health care professionals.<sup>3,4,42</sup> Many lack the knowledge and skills to manage pain effectively. They have inaccurate and exaggerated concerns about opioid side effects, especially about addiction, tolerance, and respiratory depression.<sup>43,44</sup> Patients and the public share these concerns and may be reluctant to advocate for pain relief.<sup>45,46,47</sup>

## **Methods**

This project engaged the network of state pain initiatives in pain quality improvement programs designed to impact small health care organizations, i.e., community hospitals, long-term care facilities and home health agencies. The state pain initiatives are voluntary, grass-roots organizations dedicated to overcoming the barriers that prevent the relief of cancer and all types of pain.<sup>48</sup> The American Alliance of Cancer Pain Initiatives (AACPI) is the national network of these initiatives.<sup>49</sup> The Resource Center of the AACPI is housed at the University of Wisconsin-Madison Medical School.

These practice change programs were modeled after those the Palliative Care Program of the Medical College of Wisconsin

designed to improve the quality of pain care in long-term care facilities in southeastern Wisconsin.<sup>38</sup> These programs required administrative commitment from the participating health care facilities, assessment of the structures in place to support pain assessment and management, the formation and education of a pain quality improvement team, the development of a quality improvement plan and assessment of the impact of quality improvement activities on system structures and patients' pain experiences. The time line for completion of the various components of the 10-month long programs is given in [Table 1](#).

### ***Project Implementation***

Seven state pain initiatives implemented programs in 2001-2. Each initiative assembled a core group of 10-15 volunteers, and hired a coordinator for the 10-month long program. They obtained funding to support their program activities from a variety of sources. In order to qualify to enact a program, each initiative had to demonstrate the ability to:

- identify and hire personnel to fill the roles of coordinator and assistant,
- provide an office as well as office equipment and supplies for the program staff,
- identify and recruit 15-25 long-term care facilities, home health agencies, and/or community hospitals to participate in the program, and
- form collaborative relationships with the state agency responsible for surveying facilities for licensure.

Six initiatives applied to and received contract awards from The Resource Center of the AACPI to partially support the program. The Robert Wood Johnson Foundation supported five of these awards, and the Project on Death in America the sixth. Initiatives had to obtain matching funds from local sources. A seventh initiative received support from the New England Division of the American Cancer Society.

The Resource Center provided on-site, telephone, and email consultation to the initiative program staff and volunteers; templates for the recruitment materials; the agendas, content, structure, and continuing education units for the educational conferences; plenary faculty; a database and written program management instructions; the survey instruments; data analysis; and summary reports for the participating facilities.

The University of Wisconsin-Madison Health Sciences Committee for the Protection of Human Subjects approved this project. Each health care organization submitted its patient interview data in aggregate form without any patient identifiers. As such, neither consent forms nor information sheets were required. Each organization signed a confidentially agreement which detailed the risks and benefits of the interview process.

### ***Recruitment of Health Care Organizations***

Each initiative identified a geographic area and type of organization to be targeted. The geographic area was limited as the coordinator had to make site visits to each participating organization. Connecticut, Michigan, Virginia and Vermont elected to recruit a combination of long-term care facilities, home health agencies, and hospitals. Arizona and New Mexico focused on long-term care facilities, and North Carolina on home health agencies. The coordinators sent letters of invitation to the targeted organizations.

The Director of Nursing and Administrator of each organization that registered for the program:

- identified a team of 2-3 staff who would directly participate in the site visit and conferences and who would be responsible for implementing an action plan to improve pain management practices,
- signed a letter of commitment to support the activities of the team.

Each organization was charged \$500 to participate, under the assumption that this financial commitment would heighten administrative commitment. Some initiatives elected to obtain additional funding to provide full or partial “scholarships” for organizations with financial constraints.

### **Consultation**

The coordinator provided consultation to the participating organizations through a site visit and monthly phone calls. Prior to the first conference, the coordinator made a site visit to help each participating organization’s team determine whether their organization had structures in place to support the assessment and management of pain.

Between the first and second conferences, the coordinator called each organizational team monthly to check on progress and offer support and guidance. Teams were also encouraged to contact the coordinator or The Resource Center project staff as needed.

### **Educational Conferences**

As shown in [Table 1](#), there were two educational conferences that combined plenary sessions, case-study and role-play workshops, and demonstrations of non-pharmacological techniques. In addition to the educational outlines, participants received reference materials and resource tools.

Day one of the first conference focused on the consequences of unrelieved pain, pain assessment in cognitively intact and impaired patients, pharmacologic management of pain, and communication between nurses and physicians. Day two began with a review of the knowledge gained in the first day, followed by workshops on alternative and complementary therapies, and a final session to guide the teams to develop a work plan to change the system processes that affect pain management. The initiatives attempted to enlist a representative of the state agency responsible for facility licensure to provide a presentation on survey requirements for pain assessment and management. Some initiatives held this session in the first conference, others chose the second.

The second conference, which took place five months later, included didactic sessions on the management of neuropathic pain and the use of adjuvants as well as other topics of the participants’ choosing. These included pain management patient education, pain and addiction, and pain assessment in the cognitively impaired. Each organizational team also presented a poster showcasing its efforts to improve pain management practices.

### **Feedback**

After data collection was complete, The Resource Center of the AACPI provided each participating organization with a report that compared its pre- and post-program results to all other organizations of the same type in the program. This allowed organizations to monitor their own progress and benchmark their performance against other similar organizations.

### **Project Evaluation**

Evaluation of this project was based upon changes in the organizational structures in place to support pain assessment and management, participants’ knowledge, and patients’ pain experiences.

### **Structural Assessment**

The term *Structure* in the Structural Assessment (SA) is derived from the Structure-Process-Outcome model first developed by Donabedian.<sup>50</sup> Structure refers to the enduring characteristics of the clinical setting, including policies, procedures and standards of care. The SA was based on the elements identified by the American Pain Society<sup>1,5</sup> and the AHCPR<sup>3</sup> as being essential to the success of pain management quality improvement efforts. As such, the assessment also closely mirrors the requirements set forth by the JCAHO pain standards.<sup>6,7</sup>

The SA addressed whether the organization had structures in place to support the assessment and management of pain: a mechanism to prompt the screening of all patients for pain, a standard for pain

assessment and documentation that assures that pain is recognized and treated promptly, the adoption of pain scales and assessment forms for the cognitively intact and cognitively impaired, the provision of patient education materials, formal mechanisms to promise attentive care of pain, and an interdisciplinary work group that examines and reexamines practices. The major elements of the SA are listed in [Table 2](#).

The coordinator completed a SA in collaboration with each organizational team at the site visit prior to the first conference. In the two weeks preceding the second conference, the coordinator contacted and instructed the teams to independently repeat the SA for submission at the second conference. The methodological differences between the pre and post program SA data collection limit the validity of the analysis of comparison. The unit of analysis of the SA was the organization. The McNemar test was used to test the direction of change of each of the items.

### **Knowledge Survey**

At the beginning of the first conference, participants took a 23-item knowledge survey, which assessed knowledge of basic pain assessment and management as well as common pain myths. This tool was modified from one developed for the Pain Resource Nurse training program.<sup>36,51</sup> At the end of the second conference five months later participants repeated the test. The tests were anonymous, although participants were asked to indicate their setting and discipline. An independent samples T-test was used to compare pre- and post-test scores, while a two-way between-group analysis of variance (ANOVA) was used to determine whether differences in pre- and post-test scores depend on the participants' setting.

### **Patient Questionnaire**

We used *The One Minute Pain Questionnaire* to assess the impact of the program on patients' pain experiences. [Table 3](#) contains the text of the survey, which was created and reviewed by three pain experts for content

validity. The survey was adapted from other commonly used measures,<sup>3,5</sup> and designed to be useful as a quality improvement measure that was easy for patients to understand and not burdensome to the health care organization to administer. If patients indicated they had pain in the prior 24 hours, they were asked to rate intensity, level of distress, relief from analgesics, and sense of control and satisfaction with pain management. Each item was analyzed as a unique quality improvement indicator. Intensity, distress and relief reflect the pain experience. Organizations typically place great value on patient satisfaction. Sense of control was included as a potential mediator of satisfaction.

The coordinator taught each team how to use a random numbers table to select 10 patients to complete the survey before the first conference and a second set of 10 patients in the month just before or after the second conference. The tool and the process of data collection served two purposes. First, it provided an organizational snapshot of patient outcomes. Second, the process of collecting and collating the surveys served to build awareness of the problem of pain in the organization.

At both data collection points, each organizational team tallied its surveys and submitted counts of the responses to each question. Because the data were submitted in this aggregate form only, there was no need for institutional review board approval at each organization. We used the counts to calculate organizational scores expressed as percentages, and paired samples T-tests to compare pre- and post-program scores.

## **Results**

A total of 113 health care organizations (49 long-term care facilities, 40 home health agencies 18 community hospitals, and 6 "other") participated in the practice change programs. We did not include the data from the six in the "other" category in the analysis, as they could not be grouped in a meaningful way. This category included three hospices,

two rehabilitation facilities, and one assisted living facility.

The hospitals had an average of 152 beds. All were incorporated as not-for-profit, and 94% were JCAHO accredited. The home health agencies had an average census of 400. Most (90%) were incorporated as not-for-profit, and 82% were JCAHO accredited. The long-term care facilities had an average of 143 beds. Only 53% were incorporated as not for profit, and 41% were JCAHO accredited (see [Table 4](#)).

### **Structural Assessment**

Eighty-eight of the 107 long-term care facilities, home health agencies, and hospitals (82%) submitted both pre and post Structural Assessments. As shown in [Table 2](#), there were statistically significant changes in most of the structural elements in all settings. Some did not change because of ceiling effects, in that most organizations had them in place at the outset of the program. There were significant increases in all three settings in the numbers of organizations with plans to monitor the appropriateness and effectiveness of pain management, tools to assess cognitively impaired patients, processes in place to provide educational materials for pain management to patients and families, and formal mechanisms to communicate that pain assessment and management are important parts of care. These mechanisms included the use of formal mission statements, language in facility brochures, posters in patient rooms, and admission packet and patient rights statements. There were significant increases in the numbers of home health agencies and long-term care facilities with standards mandating the point at which pain assessment and intervention should occur, and that incorporated information about pain assessment and management into the orientation of at least four disciplines.

The content of the pain assessment forms improved significantly ( $p < 0.001$ ), with more organizations including cues to document pain quality, onset and duration, what makes pain worse, variation with time of day or

activity, analgesic history, barriers to reporting pain and using analgesics, goals of pain relief, emotional status/mood, impact on activities of daily living, and physical findings at the site of pain. At the beginning of the program, almost all organizations' assessment forms already included cues to assess pain intensity.

We assigned one point to each SA element to create an overall score. Three of the elements were factored to reflect their comprehensiveness: pain assessment forms by their content, education/orientation by the number of disciplines, and the pain quality improvement team by whether it was interdisciplinary. The total possible score was eleven. Among long-term care facilities, the average score increased from 5.2 to 8.2, home health agencies from 6.0 to 8.2, and hospitals from 6.9 to 9.5 (all  $p < 0.001$ , see [Figure 1](#)).

The 19 organizations (12 long-term care facilities, 5 home health agencies, and 2 hospitals) that submitted only a pre-program SA were substantially less likely to have structures in place. On the average, these organizations had 3.9 SA elements in place at the beginning of the program, compared to 5.8 for the organizations that submitted both a pre- and post-program SA.

### **Knowledge Survey**

At the first conference, 299 participants completed the knowledge pre-test; at the second conference, 5 months later, 170 completed the test. Although there was substantial overlap in participants, there were new participants at time 2. The tests were anonymous, so results were not paired. There was a significant increase in scores on the 23-item test from 15.4 (67% correct) to 19.1 (83%,  $p \leq 0.00$ ).

On 265 tests from the first conference and 152 from the second, the participants indicated that their work setting was either home health, long-term care or hospital. We used an analysis of variance in which time and setting served as independent variables to test the differences in scores from the first

to second conference. There was a significant interaction effect ( $p < .001$ ) indicating that the improvement varied by setting. The hospital participants had the greatest improvement from 14.3 at the first test to 20.1 at the second (see [Table 5](#)).

### **Patient Questionnaire**

Fifty-eight organizations (54%) submitted both pre- and post-program patient questionnaire data: 26 long-term care facilities, 26 home health agencies, and 7 community hospitals. There was a high prevalence of moderate to severe pain in each of the three settings at the beginning of the program (average percentage long-term care 48%, home health 51%, hospitals 60%). In all three settings combined, there was a significant decrease from the beginning to the end of the program in the average percentage of patients reporting pain in the prior 24 hours (pre 67%, post 61%,  $p < 0.01$ ) and in the average percentage of patients reporting moderate to severe pain (pre 52%, post 45%,  $p < 0.01$ ).

[Table 6](#) shows that the majority of the decrease in the prevalence of pain was in the long-term care facilities, where there were significant decreases in the average percentage of residents reporting pain of any severity, as well as in those reporting moderate to severe pain in the prior 24 hours. There was also an increase in the average percentage of residents with pain who had taken pain medication in the prior 24 hours. Unfortunately, a significantly lower percentage of residents felt they were “quite a lot” or “totally” in control of their pain management.

[Table 6](#) also shows a decrease in the percentage of patients in pain in home health agencies who reported taking pain medication in the prior 24 hours. This was opposite of the change we expected to see. In hospitals, there was a significant decrease in the percentage of patients with pain who had pain all of the time. We compared the scores of the pre-program patient survey results from the 33 organizations that submitted only pre-program surveys and the

58 that submitted both pre- and post-program surveys. None of the differences approached significance at the  $p < 0.01$  level.

## **Discussion**

While conferences that solely provide education can increase participant knowledge, this project demonstrated that a program that guides participants to integrate knowledge with quality improvement activities can affect organizational processes and, to a more modest degree, patient outcomes.

There were statistically significant improvements in many structural elements in all care settings involved in these programs. We are encouraged that this relatively brief intervention could have such an impact on policies and procedures essential to the success of any pain quality improvement effort. Nevertheless, there are some areas in which there is still considerable need for improvement. At the end of the program, less than two-thirds of organizations had a tool to assess pain in the cognitively impaired or a standard that mandates when pain requires intervention. Less than 85% provided educational materials or had a formal mechanism to convey to patients and families that pain is an important part of care. Only 80% had a quality improvement plan in place to monitor the appropriateness and effectiveness of pain management.

The JCAHO began scoring the pain standards for compliance in 2001, which coincided with the implementation of this project. The influence of the standards, coupled with the fact that there was not a control group, makes it difficult to be certain how much of the structural improvement was due to the practice change programs and how much was due to the standards. However, the 30 organizations that participated in the programs that started in 2002 had on average fewer structural elements in place at the beginning of the program (5.1) than did the 77 organizations that participated in the program in 2001 (5.6). The programs that started in 2002 had already had more than a year to be influenced by the JCAHO standards. It is also

possible that the advent of the standards increased the motivation of organizations to participate in the program. It is worth noting, however, that only 41% of the long-term care facilities, the organizational type that showed the most improvement in this program, were JCAHO accredited (see [Table 4](#)).

Even though there were significant and sustained improvements in the knowledge of participants, some major deficits remained in specific areas. For example, on the post-test less than 70% correctly answered questions about an equianalgesic conversion, the duration of action of and toxicity of meperidine and the efficacy of Prozac in neuropathic pain. Only 80% knew that tolerance does not develop to the constipating effects of opioids, a concept which is crucial for nurses to understand if they are to appropriately educate and treat patients.

While a subset of patients experienced meaningful reductions in pain severity, the prevalence of moderate to severe pain remained unacceptably high. Pain of this intensity has negative impact on quality of life and patients' ability to participate in activities of daily living.<sup>52,53</sup> Administrators and clinicians alike sometimes question the need to single out one symptom as the focus of intensive quality improvement efforts. However, the combination of the high prevalence and high impact of moderate to severe pain provides a rationale to support the ongoing commitment of resources to the process of pain quality improvement.

We had anticipated difficulty in documenting change in patient outcomes with such a short intervention, so were pleasantly surprised by the positive changes in long-term care. We can only speculate about the reasons why there were changes in this setting and not in the others. One possible contributing factor is that patients stay in this setting the longest, so the staff have an ongoing opportunity to effect improved pain management.

One disconcerting change was the significant decrease in long-term care residents' sense of control over their pain management. In this

project, each organizational team combined the responses from the surveys they collected, and submitted composite scores for each category of the survey questions. In a subsequent project, we have altered our methodology so that organizations submit each individual survey for analysis. This will enable us to examine the relationships among such variables as pain intensity, distress, sense of control, and satisfaction.

We limited recruitment to small health care organizations, either long-term care, home health and or community hospitals. The relatively short duration of the program as well as the small number of staff directly involved made it particularly well suited to quality improvement efforts in small organizations. Multi-layered health care facilities with complex decision making processes, such as tertiary care hospitals, may need a more prolonged program and a larger team.

This program, like others implemented in large hospital settings, demonstrated the feasibility of making structural changes,<sup>54</sup> but also the difficulty of improving the outcomes for a substantial portion of the population. While it will be important to sustain the structures to support pain assessment and documentation, it will also be necessary to make specific and targeted efforts to improve the range and appropriateness of pain treatments. For example, once the structures outlined in this program are in place and staff are consistently recording pain assessment and reassessment, the organization should continue with quality improvement activities directed to ensuring that effective treatments are in place for the intensity and type of pain. Organizations could focus on particular pain syndromes and evaluate whether appropriate therapies are being used. The resulting data could be used to define the need for education on how to apply multimodal therapies. Because pain syndromes are varied and often complex, the process of data collection, feedback, education, and structural change would likely have to be repeated many times.

To implement this program, we needed to develop means to provide support and materials to the participating state initiatives. On the whole, this process went very well, in no small part due to the energy and dedication of the state pain initiatives' coordinators and volunteers. However, we found great variation in the initiatives' abilities to engage the state agency responsible for surveying facilities for licensure. This appeared to be due to differences in the cultures and priorities of the agencies from state to state. In our pilot efforts, the Wisconsin surveyors joined our planning team, attended all conferences, and acted as faculty. The response of the agencies in these seven programs ranged from immediate response and engagement as faculty in the first conference to very limited engagement only after multiple phone calls from the coordinator.

Combining education with feedback from data collection and analysis can improve outcomes.<sup>55</sup> The process of collecting the patient surveys gave staff an understanding of the prevalence and impact of pain, the structural assessment helped them to identify shortfalls in their systems, and the knowledge survey helped them recognize knowledge deficits. Such information in and of itself provided significant motivation for the importance of the work of improving pain management practices and insight about where to best direct their activities.

The participating teams were required to present a poster at the second conference. These sessions were perhaps the most compelling aspect of the programs. The participants embraced the assignment and created a wide variety of presentations: everything from poster boards created with crayon and hand drawings to sophisticated electronic presentations to skits, and to, in one case, a quilt. The teams shared ideas and materials, and had an opportunity to applaud and support one another.

The project analyses had several limitations. We designed the programs to give the initiatives the opportunity to enact the second

conference of the program as independently as possible. Initiatives were responsible for providing plenary faculty, obtaining continuing education units and independently maintaining attendance records. The latter issue limited our ability to determine why organizations did not submit post program data. The knowledge surveys were anonymous, and so we were unable to match pre and post surveys either by individual or by facility. Thus the analysis is not longitudinal but rather cross sectional at two points in time.

This practice change program project demonstrated how to help staff embrace and take ownership of the issue of working to improve the quality of pain management. It also demonstrated that positive changes in organizational structures and, to a limited degree, in patient outcomes can occur in a very short time frame with a supportive framework of education, consultation, and team-building.

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**Table 1  
Practice Change Program Timeline and Activities**

| <b>Month</b> | <b>Activity</b>   | <b>Data Collection</b>   |
|--------------|---|--|
| 1-3          | Recruitment of health care organizations<br>Site visit to each participating organization   | The site visitor: <ul style="list-style-type: none"> <li>• instructed the organizational teams to survey 10 randomly selected patients</li> <li>• worked with the teams to conduct a baseline assessment of the structures in place to support pain assessment and management</li> </ul>               |
| 4            | 1 <sup>st</sup> Conference (2 days) <ul style="list-style-type: none"> <li>• Consequences of unrelieved pain</li> <li>• Pain assessment in the cognitively intact and impaired</li> <li>• Pharmacological management</li> <li>• Nurse/physician communication</li> <li>• Complementary therapies</li> <li>• Requirements for state organizational licensure</li> <li>• Work plan development</li> </ul> | <ul style="list-style-type: none"> <li>• Each organizational team submitted the results of the patient surveys</li> <li>• Each conference participant took a pre-test (23-item survey of knowledge)</li> </ul>   |
| 5-8          | Monthly telephone consultation offered to organizational teams<br>Team implemented work plan  |  |
| 9            | 2 <sup>nd</sup> Conference (1 day) <ul style="list-style-type: none"> <li>• Management of neuropathic pain</li> <li>• Poster presentations by the organizational teams</li> <li>• Additional content as requested by 1<sup>st</sup> conference participants</li> </ul>  | The organizational teams <ul style="list-style-type: none"> <li>• Submitted the 2<sup>nd</sup> set of patient surveys</li> <li>• Completed a post-program assessment of the structures in place to support pain assessment and management</li> </ul> Conference participants took knowledge post-test. |
| 10           |   | Deadline for submission of results of second set of 10 patient surveys   |
| Post program | The Resource Center provided each participating organization with reports that compared their pre and post program data with composite data from other organizations of the same type.  |  |

**Table 2**  
**Percentage of organizations that had key structural elements**  
**in place pre- and post-program.**

| Structural Element  | Long-Term Care Facilities<br>n=37 |         | Home Health Agencies<br>n=35 |        | Hospitals<br>n=16 |         |
|---|-----------------------------------|---------|------------------------------|--------|-------------------|---------|
|   | pre                               | post    | pre                          | post   | pre               | post    |
| <i>The organization has in place...</i>   |                                   |         |                              |        |                   |         |
| cue(s) in the documentation system to prompt the nurse to screen for the presence or absence of pain at the time of admission | 95%                               | 97%     | 97%                          | 100%   | 81%               | 100%    |
| a standard to mandate when a complete pain assessment is to be done   | 81%                               | 100%*** | 69%                          | 91%*** | 67%               | 94%     |
| a tool for baseline pain assessment of the cognitively intact patient   | 89%                               | 89%     | 97%                          | 91%    | 88%               | 100%    |
| a scale to rate pain intensity  | 91%                               | 100%    | 97%                          | 100%   | 100%              | 100%    |
| tool for pain assessment of the cognitively impaired patient  | 38%                               | 67%**   | 9%                           | 41%*   | 31%               | 88%**   |
| a standard to mandate when pain requires intervention   | 22%                               | 54%*    | 29%                          | 56%**  | 31%               | 75%**   |
| a process to incorporate information about pain assessment and management into the orientation of at least 4 disciplines      | 16%                               | 59%*    | 31%                          | 69%*   | 50%               | 31%     |
| a process to provide patients and families with educational materials about pain management                                   | 11%                               | 61%*    | 63%                          | 86%*** | 69%               | 100%*** |
| formal mechanism(s) to convey to patients and families that pain management is an important part of care                      | 39%                               | 80%*    | 51%                          | 76%*** | 63%               | 94%***  |
| a pain quality improvement team   | 38%                               | 83%*    | 69%                          | 88%    | 100%              | 100%    |
| a plan to monitor the appropriateness and effectiveness of pain management  | 32%                               | 76%*    | 34%                          | 76%*   | 69%               | 100%*** |

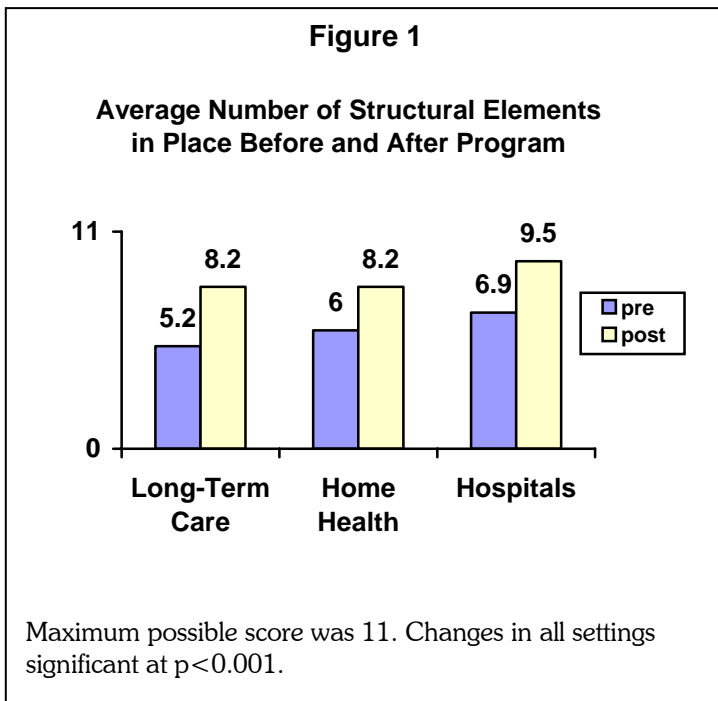
Change from pre to post measure significant:

\*  $p \leq 0.005$

\*\* $p \leq 0.01$

\*\*\*  $p \leq 0.05$

McNemar Test used to assess direction of change in each of the variables



**Table 3**  
**The One Minute Pain Questionnaire**

1. During the last 24 hours did you have pain or did you take any medication for pain?
  - yes ..... 1
  - no ..... 2 **(You are finished. Thank you for your time..)**
2. During the last 24 hours, how intense was the pain at its worst? Was it...
  - mild ..... 1
  - moderate ..... 2
  - severe ..... 3
3. During the last 24 hours, how often did you have pain? Was it...
  - Occasionally, or less than half the time ..... 1
  - about half of the time ..... 2
  - most of the time ..... 3
  - all of the time ..... 4
4. During the last 24 hours, how much did the pain distress or bother you? Would you say...
  - not at all ..... 1
  - some ..... 2
  - quite a lot ..... 3
  - totally ..... 4
5. During the last 24 hours did you take any medication for pain?
  - yes ..... 1
  - no ..... 2 **(Skip to question 7)**
6. How much relief from pain did the medications provide?
  - no relief ..... 1
  - some relief ..... 2
  - quite a lot of relief ..... 3
  - complete relief ..... 4
7. How much do you feel you are in control of your pain management?
  - not at all ..... 1
  - some ..... 2
  - quite a lot ..... 3
  - totally ..... 4
8. Overall, how much are you satisfied or dissatisfied with your pain management? Are you:
  - Very dissatisfied ..... 1
  - Somewhat dissatisfied ..... 2
  - Somewhat satisfied ..... 3
  - Very satisfied ..... 4

For information about this questionnaire, contact either Susan Beck, PhD, RN, FAAN at 801-585-9609 or Patricia Berry, PhD, APRN, BC-PCM at 801-585-9636

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**Table 4**  
**Description of Participating Health Care Organizations**

|  | Community hospitals<br>N=18 | Home health agencies<br>N=40 | Long-term care facilities<br>N=49 |
|--|-----------------------------|------------------------------|-----------------------------------|
| Average # of patients (range)  | 152<br>(22-576)             | 400<br>(45-2337)             | 143<br>(30-540)                   |
| Incorporated as Not-for-profit (%)   | 100                         | 90                           | 53                                |
| JCAHO Accreditation (%)  | 94                          | 82                           | 41                                |
| Average # years current Director of Nursing in position                                  | 6.5                         | 4.3                          | 3.3                               |
| Type of area served<br><i>note: organizations could serve more than one type of area</i> |                             |                              |                                   |
| Urban  | 50%                         | 60%                          | 65%                               |
| Rural  | 67%                         | 55%                          | 37%                               |
| Populations Served (weighted average %)  |                             |                              |                                   |
| Caucasian  | 67                          | 63                           | 85                                |
| African American   | 26                          | 25                           | 6                                 |
| Hispanic   | 3                           | 8                            | 8                                 |
| Asian  | 3                           | 2                            | 1                                 |
| Native   | <1                          | <1                           | 1                                 |
| Eastern Indian   | <1                          | <1                           | <1                                |
| Other  | 1                           | 2                            | <1                                |
| Average number of staff  |                             |                              |                                   |
| RN   | 246                         | 30                           | 16                                |
| LPN  | 48                          | 9                            | 20                                |
| Nursing Assistants   | 91                          | 27                           | 61                                |
| PT/OT  | 18                          | 16                           | 6                                 |

RN = registered nurse; LPN = licensed practical nurse; PT = physical therapist; OT= occupational therapist.

**Table 5**  
**Knowledge Survey**  
**Average Scores by Setting**

| Setting         | Time | Mean | Standard Deviation | N  |
|-----------------|------|------|--------------------|----|
| Long -term care | Pre  | 15.4 | 4.22               | 94 |
|                 | Post | 17.3 | 3.18               | 45 |
| Home health     | Pre  | 15.8 | 4.09               | 88 |
|                 | Post | 19.0 | 2.42               | 54 |
| Hospital        | Pre  | 14.3 | 4.69               | 83 |
|                 | Post | 20.1 | 2.39               | 53 |

**Table 6**  
**Responses to *The One Minute Pain Questionnaire***  
**Average of organizational scores**

|   | Long-Term Care Facilities<br>n=26 |                  | Home Health Agencies<br>n=26 |                  | Hospitals<br>n=7 |                  |
|---|-----------------------------------|------------------|------------------------------|------------------|------------------|------------------|
|   | pre                               | post             | pre                          | post             | pre              | post             |
|   | $\bar{X}$ % (SD)                  | $\bar{X}$ % (SD) | $\bar{X}$ % (SD)             | $\bar{X}$ % (SD) | $\bar{X}$ % (SD) | $\bar{X}$ % (SD) |
| <b>Prevalence in all patients</b>                                       |                                   |                  |                              |                  |                  |                  |
| Pain of any severity in past 24 hours                                   | 64 (24)                           | 52* (25)         | 64 (18)                      | 67 (17)          | 82 (15)          | 71 (25)          |
| Moderate to severe pain   | 47 (22)                           | 36* (18)         | 51 (20)                      | 49 (16)          | 69 (19)          | 65 (30)          |
| <b>Characteristics in patients with pain</b>                            |                                   |                  |                              |                  |                  |                  |
| Pain half or more of time   | 61 (25)                           | 68 (25)          | 68 (20)                      | 62 (20)          | 70 (11)          | 65 (31)          |
| Pain all of the time  | 13 (13)                           | 15 (18)          | 15 (14)                      | 16 (11)          | 16 (4)           | 9*** (8)         |
| Distressed "quite a lot" or "totally" by pain                           | 44 (20)                           | 42 (25)          | 47 (22)                      | 40 (21)          | 54 (10)          | 61 (34)          |
| Received analgesics   | 83 (14)                           | 90** (14)        | 91 (9)                       | 84** (14)        | 85 (8)           | 92 (10)          |
| "Quite a lot" or "complete" relief in patients that received analgesics | 55 (32)                           | 56 (29)          | 46 (21)                      | 52 (26)          | 61 (21)          | 66 (17)          |
| "Quite a lot" or "complete" control of pain management                  | 59 (25)                           | 45** (29)        | 51 (21)                      | 60 (24)          | 66 (9)           | 73 (14)          |
| Very satisfied with pain management                                     | 35 (27)                           | 36 (24)          | 28 (20)                      | 38 (25)          | 51 (24)          | 51 (11)          |

\*  $p \leq 0.01$

\*\*  $p \leq 0.025$

\*\*\*  $p \leq 0.05$

Number of interviews: Long-term Care pre 260, post 254; Home Health Agencies pre 260, post 255; Hospitals pre 96, post 95.

One-tailed, paired-samples T-Test used to compare differences pre-post program scores

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