Improving Nursing Home Staff Knowledge and Attitudes About Pain

Katherine R. Jones, RN, PhD, FAAN,1 Regina Fink, RN, PhD, FAAN,2 Ginny Pepper, RN, PhD, FAAN,3 Evelyn Hutt, MD,4 Carol P. Vojir, PhD,5 Jill Scott, RN, PhD,6 Lauren Clark, RN, PhD,5 and Karen Mellis, BSM5

Purpose: Effective pain management remains a serious problem in the nursing home setting. Barriers to achieving optimal pain practices include staff knowledge deficits, biases, and attitudes that influence assessment and management of the residents’ pain. Design and Methods: Twelve nursing homes participated in this intervention study: six treatment homes and six control homes, divided evenly between urban and rural locations. Three hundred licensed and unlicensed nursing home staff members completed written knowledge and attitude surveys at baseline, and 378 staff members completed the surveys after intervention implementation. Results: Baseline results revealed notable knowledge deficits in the areas of pharmacology, drug addiction and dependence, side effect management, and nonpharmacologic management-strategy effectiveness. Significant differences were noted by job title (registered nurse/licensed practical nurse/certified nursing assistant). Case studies displayed a knowledge application problem, with nurses often filtering resident pain reports through observed resident behaviors. The intervention led to significant improvement in knowledge scores in some, but not all, the treatment homes. Perceived barriers to effective pain management showed a significant decline across all study nursing homes. Implications: Knowledge deficits related to pain management persist in nursing homes. An interactive multifaceted educational program was only partially successful in improving knowledge across settings and job categories. Attitudes and beliefs appear more difficult to change, whereas environmental and contextual factors appeared to be reducing perceived barriers to effective pain management across all participating nursing homes.

Key Words: Pain, Nursing homes, Staff knowledge, Attitudes

This work was supported by Grant U18-HS11093 from the Agency for Healthcare Research and Quality to the School of Nursing, University of Colorado Health Sciences Center (principal investigator Katherine Jones).

Address correspondence to Katherine Jones, RN, PhD, FAAN, School of Nursing, Yale University, 100 Church St. S., Box 9740, New Haven, CT 06520-0740. E-mail: katherine.jones@yale.edu

1School of Nursing, Yale University, New Haven, CT.
2University of Colorado Hospital, Denver.
3School of Nursing, University of Utah, Salt Lake City.
4School of Medicine, University of Colorado Health Sciences Center, Denver.
5School of Nursing, University of Colorado Health Sciences Center, Denver.
6School of Nursing, University of Missouri, Columbia.

Pain is common among nursing home residents, although it is often underreported, underassessed, and undertreated (Ferrell, 1995; Slyk, 1999; Stein & Ferrell, 1996). The American Geriatrics Society (AGS) Panel on Persistent Pain in Older Persons (2002) estimated that 45–80% of nursing home residents have substantial pain. Studies have documented that 25–26% of those with daily pain received no analgesia (Bernabei et al., 1998; Won, Lapane, Gambassi, Bernabei, Mor, & Lipsitz, 1999). A high prevalence of dementia, sensory impairments, and disability in the nursing home population makes assessment and management of pain more difficult (AGS, 2002). The consequences of poor pain management include sleep deprivation, poor nutrition, depression, anxiety, agitation, decreased activity, delayed healing, and lower overall quality of life (Ferrell, 1995; Ferrell, Ferrell, & Rivera, 1995; Herr, 2002; Parmelee, Katz, & Lawton, 1991; Stein, 2001).

Lack of knowledge about pain and its treatment remains an important barrier to effective pain management. Clinicians are unsure about the characteristics of chronic pain and the appropriate use of pain medications in the older adult population (Brockopp, Brockopp, Warden, Wilson, Carpenter, & Vandeveer, 1998; McCaffery & Ferrell, 1997). Pain may be expected to increase with aging,
fostering a belief that one should learn to “live with it” (Brown & Williams, 1995; Ferrell, 1996). These beliefs inhibit older adults from reporting pain and decrease clinician readiness to treat pain (Davis, Hiemenz, & White, 2002).

Staff Knowledge and Attitudes About Pain

Staff knowledge deficits result from limited or absent curriculum time devoted to pain management (Weissman, 1988) and inadequate information about pain treatment in textbooks (Ferrell, McCaffery, & Rhiner, 1992). Coyne and colleagues (1999) tested levels of knowledge about pain in hospital nurses and concluded that significant knowledge gaps exist. Mobily and Herr (1996) noted deficiencies in pain management knowledge among both nurses and physicians in the nursing home setting. Beliefs and attitudes are also important in shaping how people respond to pain (Parmelee, 1997; Strong, Ashton, & Chant, 1992). Nurses tend to undervalue residents’ reports of pain and employ the most conservative approaches to pain management. Nurses’ choice of analgesia may not correspond with the level of pain intensity reported by the patient (Coyne, Smith, Stein, Hieser, & Hoover, 1998). Nurses have a high degree of concern about addiction (Lander, 1990) and also worry about sedation, depression, and constipation, increasing their reluctance to medicate older adults with opioids (Herr & Mobily, 1997).

Improving Knowledge and Attitudes

Staff must be knowledgeable about pain and pain medications to dispel the many resident and family myths and misconceptions surrounding this topic (Herr, 2002). However, success with pain education programs has been inconsistent (Allcock, 1996; Bookbinder et al., 1996; Breitbart, Rosenfeld, & Passik, 1996; Breibart, Rosenfeld, & Passik, 1998; de Ronde, de Wit, van Dam, van Campen, den Hartog, & Klevink, 2000; Francke, Luiken, de Schepper, Abu-Saad, & Grypdonch, 1997; Titler et al., 1994; Wallace, Graham, Ventura, & Burke, 1997). A pain education program may increase nurses’ knowledge of pain management but may be insufficient to change actual pain management behavior (Mobily & Herr, 1996) or pain outcomes (Carr & Thomas, 1997; Lloyd & McLauchlan, 1994). Staff attitudes and beliefs, resident and physician factors, and organizational issues may exert pressures that prevent more effective practices from being implemented or sustained over time.

This article describes the results of a study to improve pain practices in nursing homes. Baseline and postintervention data included staff knowledge and attitudes about pain and its treatment in the nursing home setting, perceived barriers to effective pain practices within the nursing homes, and case studies requiring documentation of pain intensity and selection of a pain management strategy.

Methods

An intervention study to improve pain practices in nursing homes was funded by the Agency for Healthcare Research and Quality (AHRQ). The study aims included (a) improving staff knowledge and attitudes about pain, (b) improving pain policies and practices, and (c) developing and testing a multifaceted intervention to improve pain assessment and management in nursing homes. The study sample included 12 nursing homes: 6 located in urban areas and 6 located in rural areas of the state. The nursing homes, ranging in size from 65 to 180 beds, were both for profit and for profit. The intervention was implemented in six nursing homes (three urban/three rural), whereas the rest served as control sites.

Intervention

The intervention was multifaceted and included educational and behavioral components. The educational aspects of the intervention included a comprehensive pain resource binder (given to all nursing homes in the study), four 30-min staff development sessions, a 23-min staff training video that included three resident vignettes describing three pain types (neuropathic, visceral, and somatic), single pain "factoids" for posting in visible areas of the nursing home, a 7-min resident educational video and pamphlet (both in English and in Spanish), and a continuing education seminar for physicians. Educational material was based on contents of the AGS (1998) and American Medical Directors Association (AMDA, 1999) clinical practice guidelines for pain in the elderly as well as the American Pain Society Principles of Analgesic Use for Acute and Cancer Pain (American Pain Society, 1999). The behavioral aspects of the intervention included designation of a three-member internal pain team (IPT), IPT development of a pain vital sign, and site visits with discussion of feedback reports, pain rounds, and consultations.

The four educational sessions, which focused on pain assessment, pharmacologic management, pain communication, and integrative case analyses, were scheduled once every 5 weeks and delivered multiple times during the day, from early morning to late afternoon. The sessions were presented by members of the grant team (pain clinical nurse specialist, nurse-pharmacologist, and experts in communication and quality improvement). Although these sessions were targeted primarily at nursing staff, other employees were invited to attend. These educational sessions were followed by five site visits.
and meetings with the IPT, conducted primarily by the team pain specialist who was often accompanied by the principal investigator or geriatrician. The site visits were focused on working with the IPT, consisting of a certified nursing assistant (CNA), licensed practical nurse (LPN), and third member designated by the nursing home, but the IPTs were soon expanded to include the director of nursing (DON) and staff development coordinator. Pain consultations were provided by the team pain specialist and the physician during site visits and also via telephone between visits.

The research team’s physician and nurse–pharmacologist designed and conducted the physician seminar, which was scheduled at a time and location selected by the relevant physician groups. They used case vignettes from the facility and from the physicians’ and researchers’ personal practices to discuss assessing pain in cognitively impaired residents, prescribing an analgesic appropriate to the type and intensity of pain, equianalgesic opioid dosing, and preventing and managing common analgesic side effects in the elderly. A list of physicians, mid-level providers, and consulting pharmacists who care for residents at each of the intervention facilities was obtained from the DON. The physician member of the research team contacted the facility’s medical director at least twice to discuss the purpose of the seminar, seek advice about its scheduling, ask the director to prepare one or two examples of difficult pain management issues in the facility for discussion, and encourage attendance. Written invitations to the mealtime seminar were sent via mail. Food, continuing education credit, and points that could be used to lower malpractice insurance premiums were offered to those who attended. The physician seminars were targeted at the primary care physicians who regularly admitted residents to the relevant treatment nursing homes.

**Instruments**

The multidisciplinary research team modified and expanded two existing surveys of pain knowledge and attitudes (University of Wisconsin and City of Hope) (City of Hope, 2002) to align them with the geriatric pain management guidelines (AGS, 1998; AMDA, 1999) and the nursing home environment. The resulting survey included 36 knowledge items (true/false), 21 attitude items (5-point Likert scale ranging from strongly agree to strongly disagree), 2 short case studies requiring pain assessment and treatment decisions, and 14 possible barriers to effective pain management (four levels ranging from very important to not important at all). Items on the knowledge questionnaire included pain myths and misconceptions, pain assessment practices, pharmacologic and nonpharmacologic management, and concepts of addiction/tolerance. Pain and geriatrics experts reviewed the items for content validity. A version appropriate for CNAs was developed that used simpler language (eighth grade level) and excluded the medication management items. A Spanish version of the CNA questionnaire was also developed by a certified translator, back-translated by a bilingual team member, and verified by a native Spanish speaker on the research team. Overall internal consistency (KR-20) reliabilities of the knowledge test of licensed/professional and CNA surveys were .61 and .71, respectively, levels that are adequate for newly developed research measures (Nunnally & Bernstein, 1994).

The attitude questions were developed by a subgroup of the investigators, who first identified key themes to be covered. These included religious traditions and beliefs about pain and suffering, beliefs about cultural and gender differences in the expression of pain, attitudes about why residents might complain about pain (e.g., to get attention), and how staff might respond to complaints about pain. The final attitude scales included general pain biases and attitudes; general beliefs about aging; beliefs and attitudes about the role of religion, culture, and gender; pain medication attitudes; and communication issues. Overall internal consistency (Cronbach’s $\alpha$) reliability for the attitude survey was .70.

The barrier items were grouped into resident and family, physician, staff, and organizational categories. Staff barriers included knowledge deficits and communication issues. Physician barriers included knowledge deficits and reluctance to order opioids. Resident barriers included inability to report pain and reluctance to take pain medication. Organizational barriers included lack of drug availability and concerns about regulatory oversight. Respondents were asked to rate how important each barrier was in their specific nursing home. Cronbach’s $\alpha$ reliabilities for these subscales ranged from a minimum of .71 (organizational barriers) to a maximum of .87 (staff barriers). Reliability for the overall 14-item barrier scale was .93.

**Procedures**

Working with the DONs and staff development coordinators, the investigators distributed surveys and consent forms to nursing home staff during mandatory staff meetings or special staff development sessions. Baseline surveys were administered in February 2001; postintervention surveys were administered in November/December 2002. The implementation of the intervention began in January/February 2002 and lasted 9 months. Surveys were voluntary and anonymous, although each staff member was asked to create a unique identifier known only to the research participant for the purpose of matching baseline and postintervention
surveys. The investigators collected completed surveys and signed consent forms at the end of each meeting. Small gifts (e.g., pens, Post-It Notes) and snacks were offered as incentives to participate in the survey process. Five staff members attending the baseline meeting and 20 attending the postintervention meeting declined to participate or completed only a part of the survey before returning it.

Analysis

Nested factorial analyses of variance (ANOVAs) and generalized linear models (GLMs) with generalized estimating equations (GEEs) were used to test the first aim of the study. This approach acknowledges the fact that respondents are not truly independent of each other. More specifically, staff members are clustered within the individual nursing homes that are either receiving the intervention or serving as controls. Independent variables include group (experimental/control), job title (registered nurse [RN], LPN, CNA), and change across time (baseline [round 1]/post intervention [round 2]). Those participants with repeated data \( n = 43 \) were omitted from reported analyses, as were the other job titles \( n = 74 \). One treatment nursing home \( n = 50 \) was also omitted after failing to complete the intervention owing to major internal upheavals throughout the course of the study. Although, overall, 678 staff members returned surveys (300 at baseline and 378 post intervention), owing to the two reasons just mentioned as well as a variable amount of information missing on the independent variables, the sample size for analysis was 432 surveys: 176 at baseline and 256 post intervention.

Results

Table 1 displays the demographics of the analysis sample. As noted above, only 43 staff members completed the survey at both time periods, reflecting the high staff-turnover rates in nursing homes. Respondents from both time periods were predominantly female, White, and middle-aged and worked days. The largest single job category was CNA, and the largest minority/ethnic group was Hispanic/Latino (slightly <20% and reflective of Colorado population percentages). The percentage of CNA respondents increased significantly post intervention, whereas the percentage of RNs declined. Respondent tenure in the nursing homes averaged 5–6 years. This was a convenience sample, surveying only those staff members who attended the staff meetings on the date of survey administration and who agreed to sign a consent form.

Knowledge Scores

Mean treatment home knowledge scores increased from 69% to 71%, whereas mean control nursing home knowledge scores essentially did not change (from 68% to 67%). These results are somewhat misleading because of the difference in the distribution of job titles between the two data collection periods. The postintervention sample used for analysis contained many more unlicensed personnel than the baseline sample (62% of total vs 49% of total), driving the average postintervention scores down. For the overall analysis sample, RN knowledge scores increased from 75.4% to 78.7%, LPN knowledge scores increased from 69.1% to 73.8%, and CNA knowledge scores increased from 64.6% to 65.4%. ANOVA revealed that there was not a significant overall improvement in staff knowledge in the treatment homes after our intervention was implemented. There were significant overall differences in knowledge across the job titles \( p < .001 \). Variability in the nursing homes within the treatment and control groups and very small numbers of staff in some cells precluded achievement of significant results at the intervention group level. Inability to perform repeated measures analysis due to the small number of participants who completed both surveys was also a barrier.

Staff across all the nursing homes demonstrated similar knowledge deficits, which were not improved.
substantially after the intervention. There was underestimation of the potential effectiveness of nonpharmacologic measures such as distraction techniques and the ability of residents to sleep and interact socially while experiencing moderate to severe pain. Many staff members were unaware of safe and effective analgesia dosing levels and treatment options. They were also uninformed about drug addiction, physical dependence and tolerance, and which types of laxatives are safest for the elderly.

**Case Studies**

Two case studies were included to assess the application of knowledge in a real-life resident pain scenario (see Appendix). Both cases presented the same demographic and treatment data; they differed only in described behavior of the resident when reporting level of pain to the nurse. Case A included no obvious pain behaviors, whereas Case B had a marked stereotypic response to pain. In Case A at baseline, 61% of the analysis sample recorded the resident’s pain level below the resident-reported 7 on a scale of 0–10. In Case B at baseline, 37% of the analysis sample rated the resident’s pain level above the resident-reported 7, whereas 18% rated this resident’s pain level below 7. Recording a pain level incongruent with resident pain reports appeared to be a problem for all staff, although the CNAs were more likely to record a pain level different from that reported by the resident. In Case A, 76% of the CNAs at baseline said the pain level should be recorded as <7 contrasted with 47% of the professional staff. In Case B, 30% of the CNAs at baseline said the pain level should be recorded as below 7 compared with 5% of the professional staff. These percentages improved trivially post intervention.

We also examined the change in responses for both cases after the intervention was implemented in the treatment homes. For Case A, treatment home RNs showed improvement across rounds, but this did not reach statistical significance as the majority had already rated pain correctly. Treatment home LPNs showed significant improvement ($p = .028$) across rounds, with the majority rating pain below 7 at baseline and at 7 post intervention. CNAs in treatment homes also showed significant improvement ($p = .045$) across rounds, as 20% more CNAs rated pain as 7 post intervention than at baseline. The majority still rated the pain level below 7, however. The control group participants’ ratings of pain for this case showed mixed results over the study period; CNAs had the most improvement, although the majority underreported the resident’s pain. For Case B, treatment home RNs did not change significantly, and 89% overall rated pain correctly. Treatment home LPNs showed significant improvement ($p = .013$) across the intervention period. Half had overrated pain at baseline; post intervention, 81% rated pain correctly. Although 12% more treatment home CNAs rated pain correctly post intervention, the change was not statistically significant. The majority still rated pain incorrectly. None of the changes for control group participants was significant.

GLM/GEE analytic strategies with pain assessment coded as correct (a response of “7”) or incorrect (all other nonmissing responses) in the analysis sample showed significant job title and treatment group differences. For Case A ($p = .012$), RNs were 2.6 times more likely than LPNs and 8.7 times more likely than CNAs to choose the correct pain level. LPNs were 3.3 times more likely than CNAs to choose the correct pain level. Treatment group staff members generally were 2.5 times more likely to choose the correct pain level than control group staff members ($p = .014$). For Case B ($p = .011$), RNs were 2.1 times more likely to choose the correct pain level than LPNs and 8.0 times more likely than CNAs. LPNs were 3.8 times more likely to choose the correct pain level than CNAs. Treatment group staff members generally were 4.0 times more likely to choose the correct pain level than control staff members ($p = .002$).

Respondents (excluding the CNAs) were also asked to choose a management strategy for the two scenarios. Responses were classified as conservative if the treatment selected was less intensive than the previous dose (ongoing assessment), unchanged if the treatment was similar in intensity to the previous dose (ibuprofen 400 mg now, oxycodone 5 mg now, oxycodone 10 mg in 1 hr), and aggressive if the recommended treatment exceeded the previous dose (oxycodone 10 mg now). At baseline, treatment approaches similar to previous dose were more frequently selected for Case A (with the modal response being to medicate with ibuprofen). At baseline, more than half of the analysis sample (50.6%) chose more aggressive therapy for Case B (with the modal response being to medicate with oxycodone 10 mg now). There were no differences in approach between RNs and LPNs.

Analysis of patterns between treatment and control home nurses for Case A showed that even though more treatment home RNs selected aggressive treatment post intervention, the improvement was not significant. Control home RNs did as well or better. For Case B, although the majority of treatment home RNs changed to an aggressive treatment strategy post intervention, the shift was not statistically significant. RNs in the control homes showed a similar but smaller association between time period and aggressiveness of the therapy. LPNs showed essentially no improvement patterns over time for either case.

Analysis with GLM/GEE of the aggressiveness of the management strategy showed treatment group
differences only for Case A \( (p = .002) \). Treatment group staff members generally were 2.5 times more likely to have chosen the most aggressive strategy than were control group staff members.

**Staff Attitudes**

Table 2 presents the results of the staff attitudes and beliefs section of the survey. The items with the most negative responses were as follows:

- Residents might believe that pain and suffering are necessary based on religious beliefs.
- Some cultural groups are more emotional in their response to pain.
- Residents/families have a right to expect total pain relief.
- I want to be known as a person who doesn’t complain about pain.
- Some residents exaggerate their complaints to get attention.
- Residents are embarrassed to tell their nurses they are hurting.

The intervention did not have much effect on staff attitudes between baseline and postintervention periods. ANOVA showed that there were no significant differences in overall attitudes between treatment and control nursing homes after the intervention period. However, there were job classification differences \( (p < .001) \). Multiple comparison procedures revealed that CNA attitudes were significantly different from those of RNs and LPNs. Scores for the CNAs indicated a higher likelihood of having beliefs that could interfere with optimal pain management.

**Barriers**

Staff perceived a high level of barriers to effective pain management within their nursing homes prior to the intervention phase of the study. As shown in Tables 3 and 4, the percentage of staff reporting little or no importance of the barriers increased markedly between the two data collection periods, and the average barrier scale score (higher numbers reflect less perceived importance) improved over the intervention period \( (p < .001) \). This finding was true of both treatment and control homes and probably was related to contextual and environmental factors, including the implementation of the Centers for Medicare and Medicaid Services Nursing Home Compare Report Card in Colorado and the presence

<table>
<thead>
<tr>
<th>Attitude Item</th>
<th>Baseline (% D/SD)</th>
<th>Post Intervention (% D/SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Treatment</td>
</tr>
<tr>
<td><strong>Older people will bore you to death talking about pain.</strong></td>
<td>175</td>
<td>88</td>
</tr>
<tr>
<td><strong>I want to be known as a person who doesn’t complain.</strong></td>
<td>175</td>
<td>38</td>
</tr>
<tr>
<td><strong>Older women complain about pain more than men.</strong></td>
<td>172</td>
<td>58</td>
</tr>
<tr>
<td><strong>Men are supposed to be brave—not show pain.</strong></td>
<td>175</td>
<td>96</td>
</tr>
<tr>
<td><strong>Some residents exaggerate pain to get attention.</strong></td>
<td>174</td>
<td>33</td>
</tr>
<tr>
<td><strong>Even when resident is in pain, hard to get someone to pay attention.</strong></td>
<td>169</td>
<td>84</td>
</tr>
<tr>
<td><strong>Residents are embarrassed to tell staff they are hurting.</strong></td>
<td>173</td>
<td>53</td>
</tr>
<tr>
<td><strong>Some cultural groups are more emotional in their pain response.</strong></td>
<td>171</td>
<td>30</td>
</tr>
<tr>
<td><strong>Residents may believe pain and suffering are necessary.</strong></td>
<td>172</td>
<td>29</td>
</tr>
<tr>
<td><strong>Learning to live with pain builds character.</strong></td>
<td>174</td>
<td>93</td>
</tr>
<tr>
<td><strong>Life is painful—not getting around that.</strong></td>
<td>174</td>
<td>72</td>
</tr>
<tr>
<td><strong>Suffering purifies ourselves for life to come.</strong></td>
<td>174</td>
<td>92</td>
</tr>
<tr>
<td><strong>If residents get around, have to question their pain.</strong></td>
<td>173</td>
<td>93</td>
</tr>
<tr>
<td><strong>Good residents avoid talking about pain.</strong></td>
<td>174</td>
<td>94</td>
</tr>
<tr>
<td><strong>Easier for residents to put up with pain than side effects.</strong></td>
<td>171</td>
<td>85</td>
</tr>
<tr>
<td><strong>Pain medication should be given only when pain is severe.</strong></td>
<td>173</td>
<td>88</td>
</tr>
<tr>
<td><strong>More experience with pain leads to better tolerance of pain.</strong></td>
<td>171</td>
<td>92</td>
</tr>
<tr>
<td><strong>Residents should experience discomfort before next dose.</strong></td>
<td>173</td>
<td>94</td>
</tr>
<tr>
<td><strong>Residents/families have right to expect total relief.</strong></td>
<td>172</td>
<td>27</td>
</tr>
</tbody>
</table>

*Notes: D/SD = disagree/strongly disagree with the statement.*
of study data collectors in all the nursing homes every 3 months.

Discussion

The multifaceted intervention implemented in this study did not significantly improve staff knowledge in the treatment homes, although there was notable improvement in staff knowledge across the nursing job titles. Because of variation in success of implementing our intervention across the individual nursing homes, we failed to achieve statistical significance, but knowledge scores did improve in selected nursing homes, and attitude and perceived barriers scores moved in the right direction. A major challenge in this study was the high turnover rates among all the staff, leading to a completely new sample of staff members responding to the survey at the postintervention time period. These staff all received different exposure to the intervention, diminishing its potency. Qualitative analysis of study field notes showed that, in general, those nursing homes with more stable staffing, especially of the DON, administrator, and staff development coordinator, as well as stronger leadership commitment and involvement in the project had greater gains in knowledge and positive attitudes than those homes with less stable staffing and less involved leadership. Attendance at the staff training sessions varied across the nursing homes, with the more successful homes mandating attendance and facilitating coverage so staff members could leave the unit for the sessions. The treatment nursing homes in rural locations had the largest number of physicians attending the continuing medical education seminar (overall attendance across all six treatment homes ranged from 4% to 70% of invited providers). Two of these homes had consistent leadership involvement and no turnover in key positions and showed the greatest improvement in knowledge over time. The remaining rural treatment home had improvement only in LPN knowledge scores. This facility had repeated administrator turnover, an invisible staff development coordinator, DON turnover, little commitment to the project, and poor attendance at the training sessions. One urban treatment home that showed substantial improvement for RN and CNA job categories was Joint Commissions for the Accreditation of Healthcare Organizations (JCAHO) accredited and experienced turnover of the DON position only; however, few physicians attended the continuing education seminar, and attendance at the training sessions was low. The remaining urban nursing home showed little change in knowledge scores across the three job categories. This facility experienced administrator and staff development coordinator turnover, had poor attendance at the physician continuing education seminar, and observed conflict between the CNAs and nursing staff. On the other hand, the two control nursing homes that showed a significant improvement in RN knowledge both had volunteered to work closely with the state quality improvement organization on their pain initiative during the last year of this study.

Table 3. Barrier Changes by Time and Treatment/Control Group

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Baseline (% Little/No Importance)</th>
<th>Post Intervention (% Little/No Importance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Treatment</td>
</tr>
<tr>
<td>Resident reluctance to report pain</td>
<td>172</td>
<td>20</td>
</tr>
<tr>
<td>Resident inability to report pain</td>
<td>173</td>
<td>12</td>
</tr>
<tr>
<td>Physician reluctance to prescribe</td>
<td>172</td>
<td>20</td>
</tr>
<tr>
<td>Nurse reluctance to administer</td>
<td>170</td>
<td>30</td>
</tr>
<tr>
<td>Resident reluctance to take</td>
<td>172</td>
<td>25</td>
</tr>
<tr>
<td>Inadequate time to assess</td>
<td>171</td>
<td>30</td>
</tr>
<tr>
<td>Inadequate communication</td>
<td>171</td>
<td>29</td>
</tr>
<tr>
<td>Inadequate staff knowledge</td>
<td>169</td>
<td>32</td>
</tr>
<tr>
<td>Inadequate physician knowledge</td>
<td>171</td>
<td>25</td>
</tr>
<tr>
<td>Influence state and federal regulations</td>
<td>171</td>
<td>19</td>
</tr>
<tr>
<td>Availability of drugs</td>
<td>168</td>
<td>37</td>
</tr>
<tr>
<td>Resident fear of side effects</td>
<td>171</td>
<td>45</td>
</tr>
<tr>
<td>Nurses' concern about side effects</td>
<td>171</td>
<td>37</td>
</tr>
<tr>
<td>Family's concern about side effects</td>
<td>171</td>
<td>30</td>
</tr>
</tbody>
</table>

Notes: % Little/No Importance = percentage of staff agreeing that a specific barrier is of little or no importance in their facility.

Table 4. Changes in Grouped Barrier Scores Between Baseline and Post Intervention

<table>
<thead>
<tr>
<th>Type of Barrier</th>
<th>Baseline (SD)</th>
<th>n</th>
<th>Post Intervention (SD)</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resident/family*</td>
<td>1.9 (0.6)</td>
<td>174</td>
<td>2.7 (0.6)</td>
<td>254</td>
</tr>
<tr>
<td>Staff*</td>
<td>2.0 (0.8)</td>
<td>173</td>
<td>3.0 (0.7)</td>
<td>254</td>
</tr>
<tr>
<td>Physician*</td>
<td>1.8 (0.8)</td>
<td>173</td>
<td>3.0 (0.9)</td>
<td>253</td>
</tr>
<tr>
<td>Organizational*</td>
<td>2.0 (0.8)</td>
<td>171</td>
<td>3.0 (0.9)</td>
<td>251</td>
</tr>
<tr>
<td>Overall*</td>
<td>1.9 (0.6)</td>
<td>174</td>
<td>2.9 (0.6)</td>
<td>254</td>
</tr>
</tbody>
</table>

*p < 0.001.
To achieve sustainable quality improvements in nursing homes, the retention and leadership problems must be addressed. In addition, intervention strategies that are succinct and increase the ability of the nursing home to deliver its own educational programs periodically as new staff come on board would probably be more successful. Better strategies to encourage physicians to increase their knowledge of pain management in the elderly are also required.

Staff must be knowledgeable about pain and pain medications to dispel the many resident and family myths and misconceptions surrounding this topic (Herr, 2002). Results of the staff knowledge survey reiterated the findings of surveys in other settings: Knowledge deficits regarding pain assessment and management prevail. Lack of adequate knowledge is a critical factor in the suboptimal pain management documented in large proportions of the nursing home population. Effective pain assessment and management strategies must be based on scientific knowledge and research and systematically applied in patient care delivery (Agency for Health Care Policy and Research, 1992). Without such a foundation, pain treatment will be sporadic, ineffective, or both (Coyne et al., 1999). Existing evidence-based clinical practice guidelines for pain management are apparently not being utilized. None of the nursing homes in our study had clinical practice guidelines for pain management on the units. The inclusion of pain as a quality measure for both short-term and long-term residents in the Centers for Medicare and Medicaid Services Nursing Home Report Card is intended to provide an incentive for nursing homes to improve their practices in this area (Department of Health and Human Services, Centers for Medicare and Medicaid Services, n.d.). However, more aggressive assessment and identification of pain lead to higher pain scores on the report card, a possible disincentive to mount serious pain management programs. In addition, receiving a deficiency from the state related to pain may also serve as an incentive to engage more seriously in pain improvement programs.

Our data indicate that two important aspects of pain management require particular educational attention. Pharmacologic pain management is one area where there are significant knowledge deficits. Items related to appropriateness and side effects of medications were most frequently missed. There was also confusion about the concepts (definitions) of addiction, dependence, and tolerance. The case study analyses also revealed a reluctance to use aggressive pain management strategies, even in the face of reported severe pain and observed pain behaviors. The use of nonpharmacologic strategies such as massage, positioning, and distraction also needs increased attention.

The 1998 and 2002 updated AGS pain guidelines consider educational programs about pain management an essential element of training and orientation programs for all employees and affiliated professionals in long-term care facilities. Nursing assistants and other direct-care staff should receive training and mentoring in pain recognition. A special emphasis needs to be placed on programs for the unlicensed staff, as they have lower knowledge levels and more negative attitudes and beliefs than the licensed staff yet spend an average of 2 hr/day, in contrast to the 45 min/day spent by licensed nurses, with each resident (Kramer, Eilertsen, Lin, Martau, & Hutt, 2000). They therefore have a much greater opportunity to observe behavior changes that could be indicative of pain. The study team, however, noted little involvement of CNAs in care planning, rounds, or reports, and their input was infrequently solicited and sometimes ignored. Any educational interventions that are provided need to be designed so they can be offered on an ongoing basis in the nursing home and delivered with interactive, easy-to-understand, and quick-to-use material.

Increased staff knowledge by itself may be insufficient to achieve substantial practice changes as demonstrated in our case studies, which showed significant improvement in pain assessment by the nursing home staff but not in aggressiveness of pain treatment. Shifts in attitudes and beliefs are essential in the following areas:

- Pain is a necessary and acceptable part of aging;
- Residents from ethnic minority groups experience and report their pain in a more emotional manner; and
- Health care providers know more about the pain experience than the person reporting the pain.

This will require alterations in commonly held stereotypes about pain and aging. Our research team has developed a 7-min video about pain, in English and Spanish, that can be shown to new residents and to family members on resident council and family education nights. Several of our nursing homes show this video to new staff members during orientation.

Although the tools for effective pain management have long been available, the best method for disseminating this knowledge remains elusive. This study demonstrates that interactive educational programs may improve knowledge regarding pain management in some nursing homes and within some job titles, but they might not be sufficient to change clinical management behaviors. A multifaceted intervention has to overcome multiple barriers in the nursing home setting. In the case of pain, knowledge and attitudes held by staff, residents, and physicians must all be addressed. The research translation literature indicates that strategies such as self-administered audits of key metrics, quality collaboratives, and designation of internal change champions may be more successful in changing clinical practices. However, different dissemination strategies work for different populations and in different settings. Little work has been carried out in the nursing home setting, so the evidence base for effective translation strategies is limited.
is limited at this point. Rantz and colleagues (2001) have found that performance feedback reports and on-site consultations have been successful for achieving quality improvement in their sample of nursing homes. But organizational readiness, willingness, and capacity to change must also be considered. Constant turnover of administrators and staff makes implementation of quality improvement interventions difficult and sustainability of improvement over time even more challenging.

References


Received July 7, 2003

Accepted January 27, 2004

Decision Editor: Linda S. Noelker, PhD

Appendix

Case Studies

Case A. Ida is a 78 year old woman whose only medical problems are osteoarthritis and some memory loss. She received 5 mg of oxycodone 3 hours ago. As you enter her room, she smiles at you and continues talking and joking with her daughter. Your assessment reveals the following information: alert and unsedated; BP = 120/80; HR = 80; R = 18. She rates her pain as a “7” and describes it as achy, throbbing and unchanged in the last 3 hours.

Circle the number that best represents your assessment of

Vol. 44, No. 4, 2004 477
Ida’s pain to be marked on her medical record. (scale 0–10 provided).

Her current orders for analgesia are oxycodone 5–10 mg PO q 3–4 hours PRN for pain and ibuprofen 400 mg PO TID PRN pain. Of the following, check what is best for the nurse to administer at this time:

1. no analgesia at this time; continue to assess

2. 5 mg oxycodone now
3. 10 mg oxycodone now
4. 10 mg oxycodone in one hour
5. ibuprofen 400 mg now

Case B. Same case, except with the following substitution: As you enter her room, she lies quietly in bed, grimaces, and guards her hip as she turns in bed.