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Nursing Home Staff Adherence to Evidence-Based Pain Management Practices

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Abstract

The purpose of this study was to determine the extent to which nursing home staff adhere to current evidence-based guidelines to assess and manage persistent pain experienced by elderly residents. A retrospective audit was conducted of the medical records of 291 residents of 14 long-term care facilities in western Washington State. Data revealed a gap between actual practice and current best practice. Assessment of persistent pain was limited primarily to intensity and location. Although prescribing practices were more in line with evidence-based guidelines, a significant number of residents did not obtain adequate pain relief. Nonpharmacological pain management methods were rarely implemented. Nursing home staff and administrators must critically examine both system and individual staff reasons for failure to comply with best pain management practices. Research is needed to determine factors that contribute to less-than-optimal adherence to evidence-based guidelines for pain management, as well as the best methods for implementing practice change.

The quality of care provided in U.S. nursing homes has long been a concern of policy makers, health care providers, and consumers. Following a study conducted in 1986, the Institute of Medicine (IOM) concluded that care provided in nursing homes was often seriously inadequate. These findings provided the impetus for enactment of the Omnibus Budget Reconciliation Act of 1987, which established higher standards of care for nursing homes receiving Medicare and Medicaid funding. Although the quality of care in nursing homes improved after this legislation went into effect, it is well known that care remains less than optimal in many instances (Weiner, Freiman, & Brown, 2007). The prevalence of pressure ulcers, malnutrition, and incontinence remains at unacceptable levels (IOM, 2001; Weiner et al., 2007). Of particular concern is the high number of nursing home residents who experience pain (AGS Panel on Persistent Pain in Older Persons [AGS Panel], 2002; Gibson, 2007; Zanocchi et al., 2007).

Research indicates that as many as 83% of nursing home residents experience pain that often goes unrecognized or inappropriately treated (AGS Panel, 2002; Teno, Kabumoto, Wetle, Roy, & Mor, 2004; Zanocchi et al., 2007). This is significant in that the presence of persistent pain adversely affects mood, sleep quality, functional ability, and quality of life (AGS Panel, 2002; Leong & Nuo, 2007). From a systems perspective, the high prevalence of pain is a

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publicly reported indicator of the quality of care provided in long-term care facilities (Clark, 2003).

Several groups have developed and disseminated evidence-based guidelines to help nursing home staff assess and manage pain in older adults, including those with cognitive impairment (AGS Panel, 2002; American Medical Directors Association [AMDA], 2003). The guidelines synthesize current best practice through integration of scientific evidence, clinical experience, and expert opinion. These resources can potentially increase the effectiveness of pain management efforts, as well as improve the quality of care and life of nursing home residents who experience persistent pain.

The extent to which nursing home staff use evidence-based guidelines to manage residents' pain is in question for several reasons. First, long-term care facilities are relatively isolated from other sectors of the health care system and the current emphasis on evidence-based practice. Second, most of the direct care is provided by certified nursing assistants (CNAs) and licensed practical nurses who receive little to no formal education about pain or evidence-based practice (Allcock, McGarry, & Elkan, 2002; Jones et al., 2004; Kovner, Mezey, & Harrington, 2000). Third, there are few RNs on staff and even fewer who are prepared to assist in translating research-based practices to care (DiCenso, 2003; McConnell, Lekan, Hebert, & Leatherwood, 2007). Because most nursing homes do not have processes in place to help staff incorporate evidence-based guidelines into practice (McConnell et al., 2007), it is unclear if pain management is guided more by custom or evidence. Therefore, the primary purpose of this study was to document the degree to which nursing home staff adhere to current evidence-based pain assessment and management practices.

METHOD

All nursing homes and residents participating in this study were recruited as part of an ongoing randomized trial to evaluate the efficacy of a pain management algorithm specifically designed for use in nursing homes. All study procedures were approved by the Swedish Medical Center Institutional Review Board in Seattle, Washington. Participating facilities obtained a Federalwide Assurance from the U.S. Department of Health and Human Services' Office for Human Research Protections, which formally established the collaboration between participating nursing homes and the Swedish Medical Center Institutional Review Board.

Sample

Nursing Homes—Fourteen nursing homes in western Washington State were recruited as sites for this project. Facilities with at least 50 residents receiving long-term care were eligible to participate. *Long-term care* was defined as care directed at maintaining residents' function and focused on palliative, rather than curative or rehabilitative, care. Excluded from this definition was skilled nursing care reimbursed under Medicare Part B. Of the 14 facilities, 8 were nonprofit, and 6 were for profit. The number of residents living in the participating nursing homes ranged from 96 to 211.

Nursing Home Residents—Eligibility criteria for residents' participation in the study included age 65 and older; life expectancy of at least 6 months; recipient of residential, long-term care at the facility (as opposed to short-term rehabilitation); and presence of moderate to severe pain at some point during the previous 7 days. Residents receiving hospice care at the time of recruitment, as well as those whose care is reimbursed under Medicare Part B, were excluded from participation because they were unlikely to be available for long-term follow up.

Residents with pain were identified in one of three ways. First, research staff interviewed licensed nurses who oversee the care of residents on the unit. Using a unit roster, nurses were asked to identify all residents who they believed had unrelieved moderate to severe pain at any time during the past week. Second, the Minimum Data Set (MDS) coordinator or the medical records department provided the names of residents who were rated 2 (i.e., moderate pain) or 3 (i.e., times when the pain is horrible or excruciating) on Section J2b of the MDS. Third, an RN researcher reviewed the medical records of all residents who were not identified by nursing home staff as having pain. Residents with medical diagnoses often associated with pain (e.g., arthritis) were briefly interviewed and asked to participate if they reported experiencing moderate to severe pain (i.e., at least 5 on a scale of 0 to 12). Informed consent was obtained from all participants or their surrogates, if the resident was unable to self-consent due to cognitive impairment.

Measures

Demographic Data—Demographic data about age, gender, marital status, race/ethnicity, education, painful diagnoses, and comorbid conditions were abstracted from the residents' MDS Basic Assessment Form version 2.0 and other documents available in the medical records.

Pain Assessment and Management—The Pain Management Chart Audit Tool (PM-CAT) is a 17-item, investigator-developed instrument used to measure pain assessment and management practices of nursing home staff. The instrument was adapted from one developed for a previous study examining the effectiveness of a cancer pain management algorithm (Du Pen et al., 2000) and the evidence-based algorithm developed for the parent study.

The PM-CAT consists of 9 items that are indicators of a comprehensive, multidimensional pain assessment, including pain intensity, location, pattern, character, and effect on functioning/quality of life. Also included are indicators for frequency of assessment, assessment of effectiveness of the current treatment regimen, reassessment of effectiveness following changes in the treatment regimen, and assessment for side effects of analgesic agents. There are 8 indicators that reflect current best pain management practices. Round the clock and as needed prescribing practices for acetaminophen and opioids are assessed, as is use of nonpharmacological methods for pain management and inappropriate use of propoxyphene (Darvon®), meperidine (Demerol®), and nonsteroidal anti-inflammatory drugs (NSAIDs).

Scoring rules for the PM-CAT were developed by two nurse investigators with extensive experience in pain management and translational research. The scoring rules were pilot tested in two facilities and then refined. Most indicators are scored on a scale of 0 to 2, with 1 indicating *partial adherence to best practice* and 2 indicating *full adherence*. For example, the indicator for the frequency of chronic pain assessment is coded 2 if assessment occurs at least once per week, 1 for one to three times per month, or 0 for *no pain assessment documented.* Some items are scored as N/A (*not applicable*). For example, the item related to assessment following initiation of a new or increased dosage of an analgesic agent is scored N/A if no changes have been made to the analgesic regimen during the review period. Three nurse coders performed all chart audits. Interrater reliability of the PM-CAT was 90%.

Pain assessment and management practices were evaluated for the 30-day period prior to chart review on the basis of data found in nursing documentation, including nurses' progress notes, nursing assessment forms, nursing care plans, and medication administration records. Data concerning pain medication prescribing practices were extracted from the physician/nurse practitioner orders and medication administration records. Progress notes by physicians/nurse practitioners, physical therapists, and other non-nursing staff were not considered assessment data.

The rationale for the focus on nursing notes was threefold. First, nurses in long-term care settings typically oversee the residents' plan of care due to infrequent visits by primary care providers (Shield, Wetle, Teno, Miller, & Welch, 2005). Second, the nursing staff who have daily contact with residents are in the best position to assess their pain. Third, the parent study is testing an intervention that focuses on the facility staff, most prominently licensed nurses. Changes in practice resulting from the intervention are best measured by reviewing nursing documentation.

Pain Intensity, Location, Pattern, and Character—To evaluate the appropriateness of the pain treatment regimen, participating residents were interviewed about their pain by trained research coordinators. Pain intensity was measured using the Iowa Pain Thermometer (IPT), which incorporates a vertical visual scale (a graphic representation of a thermometer that becomes increasingly red as pain intensity increases), verbal descriptors, and numeric methods for scoring pain intensity (Herr, Spratt, Garand, & Li, 2007). Verbal descriptors of pain range from *no pain* at the base of the thermometer to *the most intense pain imaginable* at the top. Thirteen evenly spaced circles with numeric values from 0 to 12 are placed along the side of the thermometer and the verbal descriptors.

Studies have shown that the IPT is reliable, valid, and generally preferred over other pain intensity tools (Herr et al., 2007; Taylor, Harris, Epps, & Herr, 2005; Ware, Epps, Herr, & Packard, 2006). In addition, Herr et al. (2007) reported that the IPT had the lowest failure rate when compared with four other pain intensity tools in a sample of older adults, 22% of whom were cognitively impaired.

CNAs who regularly worked with residents provided surrogate responses for those who were unable to self-report pain intensity. Although surrogate estimates are sometimes inaccurate, studies have shown that CNAs' ratings of pain intensity can closely match nursing home residents' pain reports (Snow et al., 2004) and may be more accurate than those of licensed nurses (Engle, Graney, & Chan, 2001).

Pain location was ascertained by asking residents to respond *yes* or *no* to the prompt, "Please tell me where you feel pain," followed by a list of 10 body areas. Data were also collected about pain pattern. Participants were given a card containing four sentences and asked to choose the one that best described their pain in the past week. Choices included, "I have pain most of the time (constantly)," "I have pain most of the time but it's sometimes worse than at other times," "I have pain that comes and goes—at times I don't have any pain," and "I have not had any pain in the past week." Pain character was assessed by asking participants which of eight descriptors (e.g., aching, burning, stabbing, throbbing) best typified their pain.

Data about pain intensity, location, pattern, and character were then used to score the PM-CAT items related to pain management. For example, if a resident reported constant moderate or severe pain, the coder reviewed the medication record to see if round the clock medications were ordered for pain relief. The item was scored 0 if no scheduled pain medications were ordered, 1 if a medication was ordered but moderate to severe pain persisted, or 2 if a round the clock medication was ordered and the resident reported no or mild pain.

RESULTS

Sample

The sample was composed of the medical records of 291 residents ranging in age from 67 to 103 (mean age = 86.6, *SD* = 7.76 years). The majority of the participants were women (81%), White non-Hispanic (94%), and widowed (61%).

Adherence to Evidence-Based Guidelines: Pain Assessment

Chart audits revealed that adherence to evidence-based pain assessment guidelines varied by quality indicator but was low in most instances. Table 1 presents the quality indicators for pain assessment and the percentage of charts in which adherence to optimal practice was documented. Evidence of pain assessment was found in 85% of medical records; however, only 32% included documentation of weekly assessment. Data indicated that the basic components of a comprehensive assessment were often lacking. For example, significant numbers of charts included no documentation of pain location (37%), intensity (53%), pattern (92%), character (93%), and impact on quality of life/functioning (80%) in the previous 30 days.

Assessment of analgesic agent effectiveness is also an integral component of evidence-based pain assessment. Efficacy of as needed medications was assessed more frequently than those routinely given, 40% versus 20%. Seventy-three percent of charts included no documentation of assessment of medication side effects. Re-evaluation of new medications or increases in dosages of already prescribed medications was documented in 63% of charts, although not consistently within suggested time frames.

Adherence to Evidence-Based Guidelines: Pain Management

Medical records were also audited for both pharmacological (round the clock and as needed) and nonpharmacological methods ordered for pain management. The audit reflects medication ordering practices, not dosages administered. Table 2 reports the percentage of charts in which pain management practices adhered to current best practice for each quality indicator. Greatest adherence was noted for limited use of NSAIDs (93%) and avoidance of propoxyphene and/or meperidine (99%). As many as 78% of residents with constant pain were either not prescribed opioid medications or were prescribed dosages that were ineffective (i.e., moderate to severe pain persisted).

Residents' care plans and progress notes were also audited for use of nonpharmacological pain management methods. Although some charts (55%) mentioned nonpharmacological interventions on care plans, there was little evidence of their use in nursing documentation. Use of nondrug therapies, such as position change and application of ice, were documented in 11% of charts.

DISCUSSION

Effective pain management relies on comprehensive pain assessment as well as the use of the most current, empirically validated pharmacological and nonpharmacological methods for pain relief. Findings of this study reflect mixed levels of adherence to evidence-based guidelines. Overall, prescribing practices adhered to current best practice to a greater extent than did assessment practices. For example, adherence was high for avoiding the use of propoxyphene and meperidine, as well as for appropriate use of NSAIDs. Adherence was much lower for assessment practices. For example, assessment of pain character, pattern, and effect on functioning/quality of life was infrequently documented in medical records. The overall results of this study, however, validate the need to improve aspects of both pain assessment and pain management practices in nursing homes.

Assessment forms the foundation of successful pain management. According to current evidence-based guidelines, assessment of chronic pain should occur on a regular basis using a standardized method validated for use in an older adult population. Although all of the residents in this study had identified pain, 15% of charts had no evidence of pain assessment in the previous 30 days, and only 32% included weekly documentation. Evidence of assessment of

pain characteristics (e.g., intensity) was lacking as well. This information is essential in that it provides data to guide the pain management plan. Intensity is the attribute of pain most often routinely assessed by caregivers in health care settings and is considered to be the fifth vital sign (Lanser & Gesell, 2001). However, there was no documentation of intensity in more than half of the charts, suggesting that even basic pain assessment is not consistently done. This finding reflects previous research and emphasizes the need for further investigation of the reasons for failure to adequately assess persistent pain in nursing home residents (Cramer, Galer, Mendelson, & Thompson, 2000). Lack of adherence to current best practice guidelines is problematic because when pain assessment is inadequate, the pain management plan will also be flawed.

The primary goals of a pain management plan are to decrease pain to an acceptable level, maintain or improve functioning, and enhance quality of life. The most commonly used methods for achieving these goals in older adults are pharmacological (AGS Panel, 2002). Results of this study indicate that the prescribing practices of physicians and nurse practitioners adhered to evidence-based guidelines for non-opioid medications to a greater extent than opioids. Previous research suggests that lack of knowledge of current best practice (particularly of opioid use), concern for overmedicating, and fear of addiction are among the factors that may account for this finding (Kaasalainen, DiCenso, Donald, & Staples, 2007: Tarzian & Hoffmann, 2005). As noted earlier, adherence to evidence-based guidelines for pain assessment was less than optimal in this sample. Underassessment of pain or communication of an incomplete picture of a resident's pain by nursing home staff make it difficult for prescribers to order appropriate kinds and dosages of medications (AMDA, 2003; Jones et al., 2004).

Evidence-based guidelines also emphasize the role of nonpharmacological methods in pain management. These strategies alter the perception of pain through physical (e.g., application of ice and/or heat) or cognitive-behavioral (e.g., distraction) means (McLennon, 2005) and have been shown to optimize pain relief (AGS Panel, 2002; Gatlin & Schulmeister, 2007). It is typically dependent on nursing home staff to select specific nonpharmacological strategies to use in combination with medications. Complementary therapies were occasionally listed on care plans, but the charts provided little evidence of their use. This finding suggests that although nursing home staff may be aware of nondrug methods to enhance pain relief, they are significantly underused.

LIMITATIONS

Findings of this study must be interpreted in light of its limitations. Documentation in the medical records may not reflect actual practice, so levels of adherence to evidence-based pain management guidelines may be misleading. However, it is unlikely that excellent pain management can occur in the absence of frequent documentation of pain patterns and effectiveness of treatment. Regular interdisciplinary documentation of pain is also important in this setting where physician visits may be infrequent, staff turnover is high, and some key members of the team (e.g., CNAs) may not regularly attend care planning meetings.

KEYPOINTS

Evidence-Based Pain Management

1. As many as 83% of older adults residing in nursing homes experience persistent pain.
2. Evidence-based practice guidelines are available to assist staff with assessment and management of pain experienced by nursing home residents.

3. Although care providers' pain management practices adhere to evidence-based guidelines to a greater extent than pain assessment practices, a significant gap remains between actual and current best practice for both aspects of pain management.

These findings must also be interpreted with caution because the data focused on medications ordered. Information about the number of as needed dosages administered was not collected. Given the level of persistent moderate to severe pain present in this sample, it is not clear if ordered as needed medications were administered but ineffective or not administered when available. The sequence of assessment and administration of as needed medication is ambiguous on the basis of the data collected. Whether staff actively assessed pain or administered pain medication only after residents independently reported pain is unclear. Lack of adequate assessment documented in this study suggests the latter.

Finally, results of this study may not be generalizable to other nursing homes. Although medical records were evaluated from for-profit and nonprofit facilities, as well as those of varying size, practices in nursing homes in other parts of the country may differ from those in western Washington State.

CONCLUSION AND IMPLICATIONS

Results of this study indicate that a significant gap exists between how care providers assessed and managed pain and current best practice as defined in evidence-based guidelines. Chart audits revealed a failure to comprehensively assess residents' pain as well as regularly evaluate the treatment plan. Although prescribing practices were more consistent with evidence-based guidelines, significant areas require improvement.

Consequently, an appeal is made to nursing home staff and administrators to evaluate their policies and procedures for pain management in light of evidence-based guidelines. This will require critical examination of both system and individual staff reasons for failure to comply with current best practice. Researchers are encouraged to investigate the root causes for poor adherence to evidence-based guidelines for pain management, as well as the best methods for translating them into practice.

Future studies should also evaluate the history of pain treatment efforts. Informal interviews with staff revealed that, in some cases, multiple analgesic agents were tried but discontinued because of lack of effectiveness or unacceptable side effects. It is also likely that some residents refused to take any opioid medications. In these instances, the reasons for refusal need to be evaluated and alternate treatments tried.

Transforming actual practice into best practice will require a strong commitment on the part of all parties involved. Although change does not come easily, the rewards that accompany it are well worth the effort. The end result is a significantly reduced prevalence of persistent pain and greatly improved quality of life for nursing home residents.

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TABLE 1

ADHERENCE TO EVIDENCE-BASED GUIDELINES: PAIN ASSESSMENT

	Adherence		
Assessment Quality Indicator	**%**	***n***	**Total Charts[a]**
Chronic pain assessed at least once per week.	32	90	285
Pain location assessed two or more times in the past 30 days.	35	94	269
Intensity of moderate to severe pain assessed weekly; no to mild pain assessed two times per month.	25	70	285
Pain character assessed at least once in the past 30 days.	7	19	257
Pain pattern assessed two or more times in the past 30 days.	<1	1	265
Effect of pain on function/quality of life assessed two or more times in the past 30 days.	3	9	270
Effectiveness of overall pain treatment assessed in the past 30 days.	20	57	285
Reassessment following initiation or titration up of a drug within expected time frame.	55	35	64
Side effects assessed: new medications, within first week and weekly; previous medications, once per month.	18	42	236

Note. Percentages represent adherence to evidence-based guidelines at the highest level.

[a]Denominator for each item excludes all charts for which the item was marked as not applicable.

TABLE 2

ADHERENCE TO EVIDENCE-BASED GUIDELINES: PAIN MANAGEMENT

	Adherence		
Management Quality Indicator	**%**	***n***	**Total Charts[a]**
Resident is on acetaminophen.	93	262	283
Resident is on opioid medications for moderate to severe pain despite optimized acetaminophen; no or mild pain (treatment is effective).	15	37	245
Resident is not prescribed propoxyphene or meperidine.	99	28	285
Resident is on round the clock treatment for constant/multiple episodes of daily pain; no or mild pain (treatment is effective).	25	45	181
Resident is not prescribed nonsteroidal anti-inflammatory drugs for inappropriate reason.	93	264	285
Resident is on topical agent or other drug for neuropathic pain.	23	33	141
Treatment given for persistent or severe side effects of drugs.[b]	9	5	58
Nondrug therapies used.	11	30	285

Note. Percentages represent adherence to evidence-based guidelines at the highest level.

[a] Denominator for each item excludes all charts for which the item was marked as not applicable.

[b] Treatment for persistent or severe side effects may be overestimated due to low rates of assessment and/or documentation of side effects.