Performance Improvement

Improving Reassessment and Documentation of Pain Management

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Much has been accomplished in recent years to improve the recognition of inadequate management of pain as a major health care problem.[1–4] The development of national pain assessment and management standards implemented by The Joint Commission in 2001 exerted a major impact across health care settings in the United States.[5] The standards require accredited health care facilities to recognize the right of patients to appropriate assessment and management of pain (Standard R1.2.10); to assess pain in all patients (Standard PC.8.10); to record the assessment in a way that facilitates regular reassessment and follow-up; to educate patients, families, and providers (Standard PC.6.10); to establish policies that support appropriate prescription or ordering of (pain) medicines (Standard MM3.20); and to collect data to monitor the appropriateness and effectiveness of pain management (Standard P1.1.10).[6]

Implementation of the standards has not been without challenge.[7] Regrettably, the call to improve pain management has led in some situations to overtreatment and reported increases in the incidence of critical events.[1,8,9] For example, the Institute for Safe Medication Practices (ISMP) noted that overaggressive pain management led to alarming increases in oversedation and fatal respiratory depression events.[1] From January 1995 through June 2006, 20% of 369 medication error–related sentinel events (the category with the largest number of sentinel events) in the Joint Commission database involved opioids.[10] Ninety-eight percent of the opioid-related events resulted in patient death. Thus, it is critical that as pain treatment becomes more aggressive, so too does our attention to reassessment of pain after intervention to ensure both safe and effective pain management.

Although the Joint Commission standards have influenced many organizations to successfully implement policies and practices to ensure routine screening and assessment of pain, little has been published to describe when and how nurses perform and communicate reassessment of pain. This article describe one hospital's experiences in improving performance

Article-at-a-Glance

Background: The Joint Commission standards on pain management address the documentation of assessment and reassessment. Yet, little has been published to describe when and how nurses perform and communicate reassessment of pain. In 2005, the University of Wisconsin Hospital & Clinics (UWHC) was inconsistently reassessing pain after interventions, and documented reassessments were primarily confined to pain-intensity ratings.

Plan-Do-Check-Act: A large-scale plan-do-check-act (PDCA) cycle was implemented to improve the documentation of pain reassessments, including development of an evidence-based administrative policy, repetitive education efforts with bedside coaching, changes in daily bedside documentation flow sheets, and audit and feedback.

Results: From May 29, 2006, through July 16, 2008, a cumulative rate of 94.9% appropriately documented pain reassessments was achieved.

Discussion: Despite implementation of an evidence-based policy to clarify requirements for pain reassessment, repetitive educational efforts, changes in daily bedside flow sheets, direct and extensive leadership involvement in the form of continuous bedside coaching, combined with more timely and persistent audit and feedback and clear accountability and alignment with goals, was necessary for substantial change. Strategies to sustain improvements include daily administrative and monthly staff documentation audits with prompt feedback to clinical nurse managers and staff. Nurses are instructed on the importance of pain reassessments and on the policy and specific documentation requirements. Reassessment of pain is a routine variable displayed on unit and departmental quality dashboards. Further study should examine if the intensity of this requirement for pain reassessment documentation ultimately facilitates the safety and effectiveness of pain management.

and documentation of pain reassessments after a significant practice deficit was uncovered during a Joint Commission accreditation survey in 2005, resulting in a Requirement for Improvement (RFI). A plan-do-check-act (PDCA) framework is used to describe inconsistencies found in practice, strategies that led to improvement, and lessons learned.

Methods

Pain Management Quality Improvement Team

The University of Wisconsin Hospital & Clinics (UWHC) is a 472-bed tertiary care medical center, a Level 1 trauma center, and a National Cancer Institute (NCI)–designated comprehensive cancer center.

In 1991, UWHC formed an interdisciplinary pain management quality improvement (QI) team to improve pain management through education, the development of processes and programs intended to improve clinical practice, and outcome monitoring. The team, co-led by a pain management clinical nurse specialist [D.B.G.] and physician, is composed of approximately 50 staff from across the organization, including nurses, pharmacists, physicians, social workers, psychologists, and other staff from both inpatient and outpatient settings.

Plan

In October 2005, during individual Joint Commission tracer activity at UWHC, it was noted that reassessment of pain after interventions was not done consistently. Despite the presence of numerous documented pain-intensity ratings in medical records (Figure 1, right), individual patients who were traced were found to have undocumented gaps in the time period between high levels of reported pain, intervention, and reassessment. Tracer activity also revealed that documented reassessments were primarily confined to pain-intensity ratings. Hospital policy at that time stated that, with exceptions (for example, intravenous [IV] patient-controlled analgesia [PCA], epidural and intrathecal analgesia, moderate sedation, and a number of specific invasive treatments [such as nerve blocks] or drugs [such as dihydro-ergotamine (DHE) for migraine]), there is no predetermined standard of care that specifies exactly when reassessment after intervention must be performed. Rather, bedside critical pathways (plans of care) were to be individualized every 24 hours to provide the frequency of reassessments tailored to the nature and severity of pain and the level of interventions.

However, it was found that pathways were rarely completed or individualized for pain management. In addition, bedside documentation flow sheets afforded limited space to capture more comprehensive explanation of intervention activities and patient response other than pain-intensity ratings, sedation scores, and vital signs.

Average Number of Documented Numeric Pain Ratings, 1994–2007

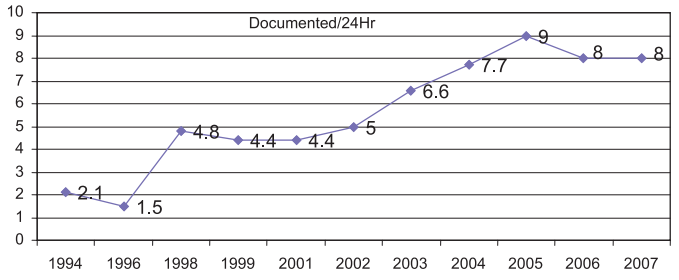

Figure 1. *The average number of documented pain-intensity ratings per 24 hours on individual patients, based on monthly documentation audit data, are shown. Each month, all inpatient units (adult and pediatric) complete an audit of nursing documentation using a sample size representative of the unit's average daily census. This provides a total inpatient adult sample size of 310 to 430 audits per month from which the graphed average is derived.*

In response to this finding, a task force was formed with staff nurses from three councils (nursing practice, nursing research and the unit council chairs) to implement a focused QI cycle. An evidence-based process was initiated to define practice expectations related to pain reassessments. Relevant literature was gathered and critiqued.

A key issue in the quality and safety of pain treatment is the recognition that each patient is an individual who requires frequent reassessments and adjustments in his or her treatment plan.[11] Rarely does a first analgesic dose or nonpharmacologic intervention (for example, ice bag) serve as a "magic bullet" to optimally and continually meet an individual's changing needs. In addition, the pain management needs of patients with acute pain or cancer pain can change or fluctuate as a result of numerous factors, including the natural course of the illness and disease-modifying treatments, thereby necessitating reassessment and adjustments in care.

Reassessments of pain need to be timely and performed in a manner that is comprehensive and appropriate to the circumstances (that is, type of pain, level of intervention, and care setting) to ensure safety and efficacy.[12] Reassessment should include not only pain relief but also side effects and adverse events produced by treatment and the impact of pain and treatment effects on patient function and quality of life. For this to be accomplished, staff must be knowledgeable about the aver-

Time Line of Pain Reassessment Improvement Activities

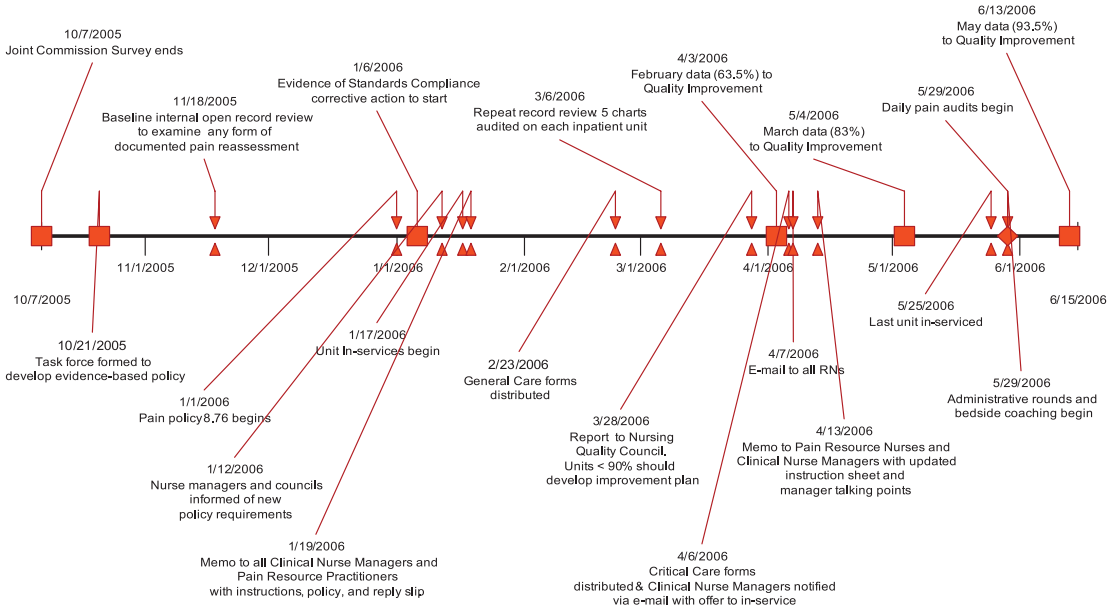

Figure 2. *This figure presents the major activities and communication points with nursing staff over time between The Joint Commission survey and achieving full and stable compliance with performance. Problems with vendor production of new forms delayed implementation. R.N., registered nurse.*

age onset, peak, and duration of action for the interventions being administered. Re-adjustments may include not only upward titration of treatment but also tapering of the analgesics. Importantly, pain management should in most situations include a balance of drug and nonpharmacologic interventions, including teaching patients about pain control options and realistic goals along with physical and cognitive modalities.

Notably absent in the literature are systematic reviews on pain reassessment practices in the hospital setting. However, similar problems of low pain reassessment rates have been documented in other settings.[13,14] Failure to reassess pain or document reassessments may be due to both intrinsic (knowledge or experience of the nurse) and extrinsic (contextual influences such as time pressure or work load) variables.[15] It is well known that education alone rarely changes practice. Several studies[16–18] have reported that the use of systematic nursing pain assessment tools and pain flow sheets improve pain documentation and management. Although no specific published reports examined the timing and necessary components of pain reassessments, evidence-based clinical practice guidelines[19–22] provide a source for recommendations based on known drug pharmacokinetics and the relationship of side effects as well as the relationship between pain intensity and interference with function.[23] A review of pain management guidelines[24–26] provided the following recommendations:

- Pain should be reassessed after each pain management intervention, once a sufficient time has elapsed for the treatment to reach peak effect (for example, 15 to 30 minutes after a parenteral medication and 1 hour after oral medication or a nonpharmacologic intervention).
- Reassessment should include whether the patient's goal for pain relief was met (for example, pain intensity, effect on function [physical or psychosocial], patient satisfaction with pain relief, whether side effects had occurred and were tolerable).

A more thorough evaluation of current practice was undertaken the month following the accreditation survey to examine baseline performance. Medical record audits were conducted on 85 open charts (5 records per unit on 17 inpatient units). Charts of patients who were receiving PRN (as-needed) interventions for pain were chosen, and the most recent 24-hour period (midnight to midnight) was reviewed. Only 24% (94/389) of timed reassessments were made within one hour after any intervention.

Do

A series of interventions and communications were put into motion (Figure 2, above). An administrative hospital pain management policy was developed and implemented in January

2006 to clearly specify requirements for pain screening, assessment and reassessment, and management of pain across all care settings. The policy's main points are listed in Table 1 (right).

Between January and April 2006, all daily nursing flow sheets in the inpatient settings were modified to expand space in the vital sign section from a simple row for pain-intensity ratings to a table (Figure 3, page 513) that includes pain relief, side effects, impact on function and patient satisfaction to facilitate more comprehensive documentation of pain reassessments after a PRN intervention. Nursing staff were given an in-service training session in conjunction with a staged release of revised flow sheets using a one-page "fast fact" outlining the new policy and requirements and through in-person unit-level council meetings and unit-based pain resource nurses. Education included the rationale for more comprehensive and timely reassessments (safety and efficacy), specific requirements for documentation, and appropriate responses to reassessment information (for example, review and adjust treatment plan, contact a physician when necessary, discuss realistic goals with patient). Policy and practice changes were reviewed and discussed at nursing practice, nursing research, nursing quality, nursing education, and the unit chair council meetings on several occasions.

Table 1. Administrative Hospital Pain Management Policy*

- Reassess and document pain relief, side effects and adverse events produced by treatment, and the impact of pain and treatment effects on patient function once sufficient time has elapsed to reach peak effect, such as 15 to 30 minutes after parenteral drug therapy or 1 hour after oral administration of a PRN (as-needed) analgesic or nonpharmacologic intervention.
- Reassessments may be performed less frequently for patients with chronic stable pain or for patients who have exhibited good pain control without side effects after 24 hours of stable therapy.
- Pain assessment for IV PCA: every 2 hours for first 8 hours, then every 4 hours; epidural or intrathecal analgesia: every 1 hour for 24 hours, then every 4 hours.

* Available by request at dgordon@uwhealth.org. IV, intravenous; PCA, patient-controlled analgesia.

Check

A performance measure was created and defined as follows: The number of reassessments that were documented within the specified time interval (30 minutes after parenteral drug or 1 hour after PRN oral analgesic or nonpharmacologic intervention) divided by the number of PRN interventions (either nonpharmacologic or analgesic) administered in a 24-hour period. Monthly documentation compliance audits, regularly performed by all registered nurses (R.N.s) as a source of audit and feedback to stimulate improvements in documentation, were revised to include the new pain reassessment performance measure. A repeat open record review and ongoing monthly documentation audit data for February, March, and April 2006 revealed improvement to 72% from baseline data (24%). Despite this improvement, our failure to achieve the target compliance rate of $\geq$ 90% led to the realization that unless more was done we would move from full to provisional accreditation status. It became clear that our monthly audit and feedback process was too slow to provide timely feedback to evaluate effectiveness of pain reassessment interventions. Also, the power of communication and education activities were recognized as insufficient for the order of magnitude of practice change required.

In spite of data collection, reports of poor performance, and numerous meetings, the seriousness of this issue was not initially grasped by nursing leadership or clinical nurses. Systems problems were numerous (Figure 4, page 514), ranging from problems with the vendor who printed our documentation forms to a lengthy cycle time of documentation audits that did not provide early warning of inadequate performance. Problems with communication and implementation processes for a new practice and new documentation requirement were also evident.

Act

On receipt of the April results in early May, the chief nurse executive and two nursing directors [S.M.R., D.M.D.] developed a plan that was immediately implemented. The actions included re-education of the clinical nurse managers and nursing directors of the severity of the problem. All nurses on all shifts across 23 inpatient units and the emergency department were affected. On average, 319 PRN pain management interventions daily (with some days as many as 661) required a timed documented reassessment. The decision was made to implement a 24-hour/7-days-per-week initiative to provide visible, interactive nursing leadership at the bedside. Clinical rounds were implemented every two hours on all patients by members of the nursing leadership team to review bedside flow sheets and to interact directly with nursing staff about any implementation questions. These rounds occurred 24 hours a day, 7 days a week for 2 weeks including 3 weekends. Discussions were held with nurses during rounds, and any potential problems were brought to their attention.

Daily Bedside Flow Sheet Pain Reassessment Documentation Table

Pain and PRN Intervention Reassessment Reassessment required 15-30 minutes after parenteral; 1 hour after oral or nonpharm ☐Less frequent reassessments required due to stable pain/treatment							
TIME							
Pain Rating							
Time of Intervention							
PRN Intervention							
Time of Reassessment							
Pain Rating After							
Side Effects							
Effect on Function							
Patient Satisfied? Y/N							
Initials							

Pain and PRN Intervention Reassessment Codes

*see narrative	NAU = nausea	IVM = IV medication	MUS = music
0 = other*	V = vomiting	POM = enteral medication	D = distraction
NA = not applicable	CON = confused	H = heat	ED = education
UTA = not able to assess	C = constipated	M = massage	↑ = improved function
U = patient not available	NB = numbness	R = reposition	↓ = decline in function
F = see pain flowsheet	P = itch	CL = cold	→ = unchanged

Figure 3. *The table includes time of reassessment and, in addition to change in pain intensity, the presence and type of opioid side effects, changes in function (physical or emotional noted in narrative), and patient satisfaction. A series of intervention codes were designed to allow staff to communicate the nature of the intervention being assessed without duplicating documentation from the medication administration record. The policy and daily flow sheets allow nurses to document less frequent reassessments for patients who have exhibited good pain control without side effects after 24 hours of stable therapy. This circumstance is documented by checking the box next to the statement indicating less frequent reassessments are required. Daily audits indicates that approximately 30% of all inpatients have this box checked. PRN, as needed.*

A form of one-on-one "bedside" (or right outside the patient's door) coaching was used by nursing administrators, clinical nurse managers, and clinical nurse specialists with individual nursing staff. Coaching, as distinct from telling, nagging, or simply directing, is a means of interacting with staff in a way that aligns goals and supports adaptation for sudden shifts in health care.[27] Frustrations were acknowledged and obstacles were identified, and through two-way discussions the staff were able to focus on the potential value to patients (versus simply meeting an accreditation requirement).

Daily audits of 100% of patient records were initiated beginning May 29, 2006. Daily meetings between the directors and clinical nurse managers were held to assess the status of the interventions and to reinforce the seriousness of the situation.

The clinical rounds, audits, and discussions produced a range of responses from nursing and medical staff, including complaints that this was an unnecessary, burdensome accreditation nuisance, to concerns about the difficulty of returning to patients for the reassessment in the appropriate time frame in the face of other work demands. However, many staff embraced the importance of these changes. For example, many staff viewed the bedside coaching with nursing leadership as constructive, as they stated during meetings and rounds and as confirmed by other managers and clinical nurse specialists.

Results

From May 29, 2006, through July 16, 2008—more than 2 years—we have sustained full compliance (that is, > 90% target) with a cumulative rate of 94.9% appropriately documented pain reassessments (Figure 5, page 515).

Discussion

In our efforts to improve performance and documentation of pain reassessments, we have learned that although changes in nursing flow sheets and simple education efforts improved compliance with the new policy, direct and extensive leadership involvement in the form of continuous bedside coaching, combined with clear accountability and alignment with goals, was necessary for substantial change. Communication and follow-up with all stakeholders, including clinical nurse managers,

Fishbone Diagram of System/Processes Acting as Barriers to Improved Documentation of Pain Reassessments

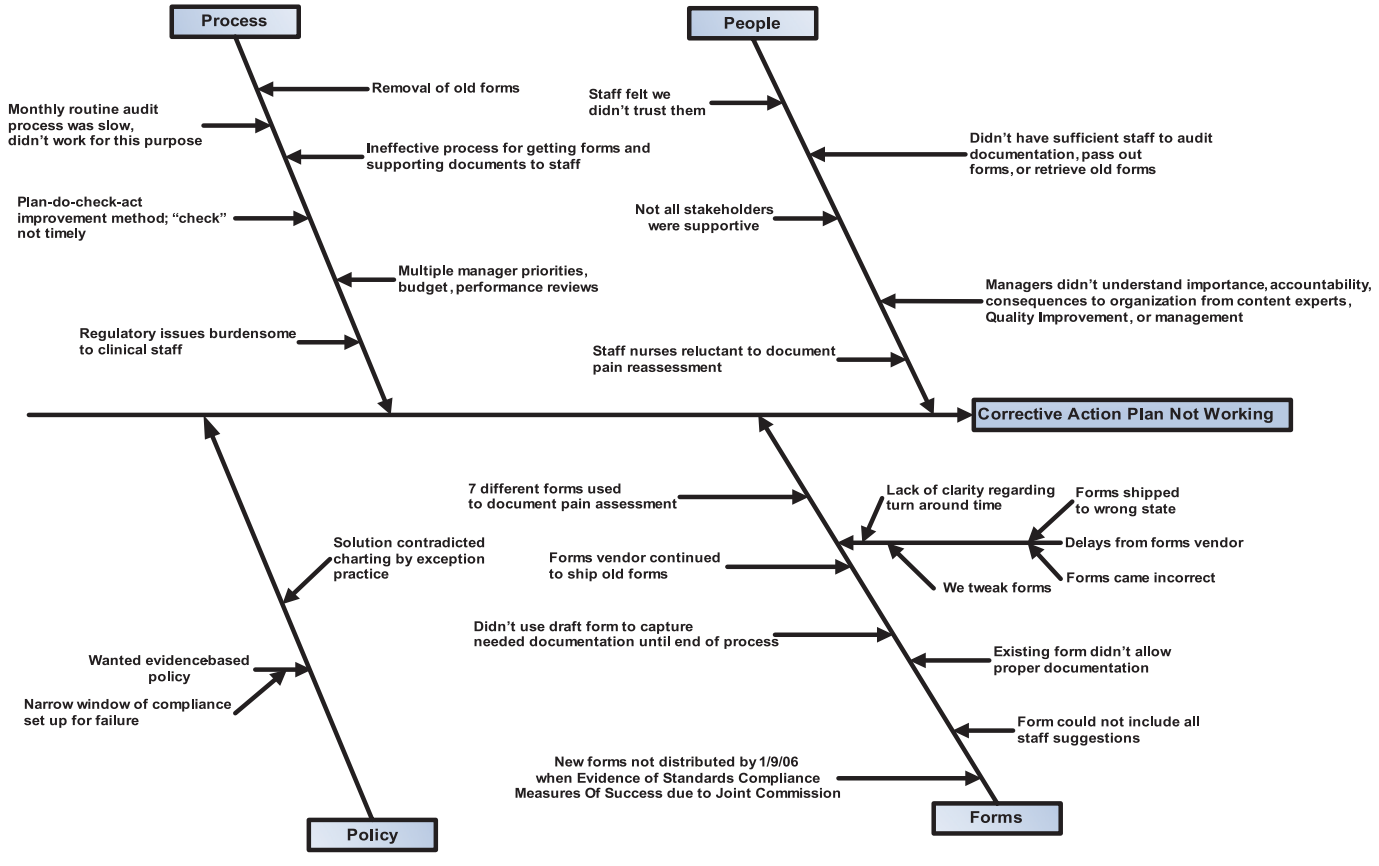

Figure 4. *An Ishikawa diagram was developed to identify factors to help explain why our initial corrective action plan didn't work. A slow production and distribution schedule for new forms, communication gaps of the new requirement, and goal alignment of staff were major barriers contributing to the initial corrective action plan having limited impact.*

directors, nursing councils, staff nurses, and other nurse leaders, was essential.

Our paper documentation system and monthly documentation audit process proved too slow to stimulate change or to provide timely feedback to evaluate practice changes. More timely and persistent audit and feedback to maintain visibility of the importance of the issue has been useful to sustain change. We believe that multilevel support and attention must be maintained on the practice change for at least six to nine months to sustain the improvement. Strategies to sustain improvements include daily administrative and monthly staff documentation audits with prompt and direct feedback to both clinical nurse managers and staff. A shared database with nursing unit–specific data is used to graphically display positive trends via regular e-mail communications and postings on laminated wall posters on nursing units.

Nurses are now instructed in hospital orientation on the importance and benefits of pain reassessments and on the policy and specific documentation requirements. Reassessment of pain is a routine variable displayed on all unit and departmental quality dashboards. The full set of pain reassessment parameters (pain relief, impact on function, side effects, and satisfaction), have been built into our customized vendor-provided electronic documentation record, scheduled for full implementation in August 2008. This electronic documentation will provide a single, longitudinal record, integrating inpatient and outpatient assessments to help ensure that treatment decisions are based on the most up-to-date information, and

Total Number of PRN (As-Needed) Interventions and Documented Compliance, May 29, 2006–July 16, 2008

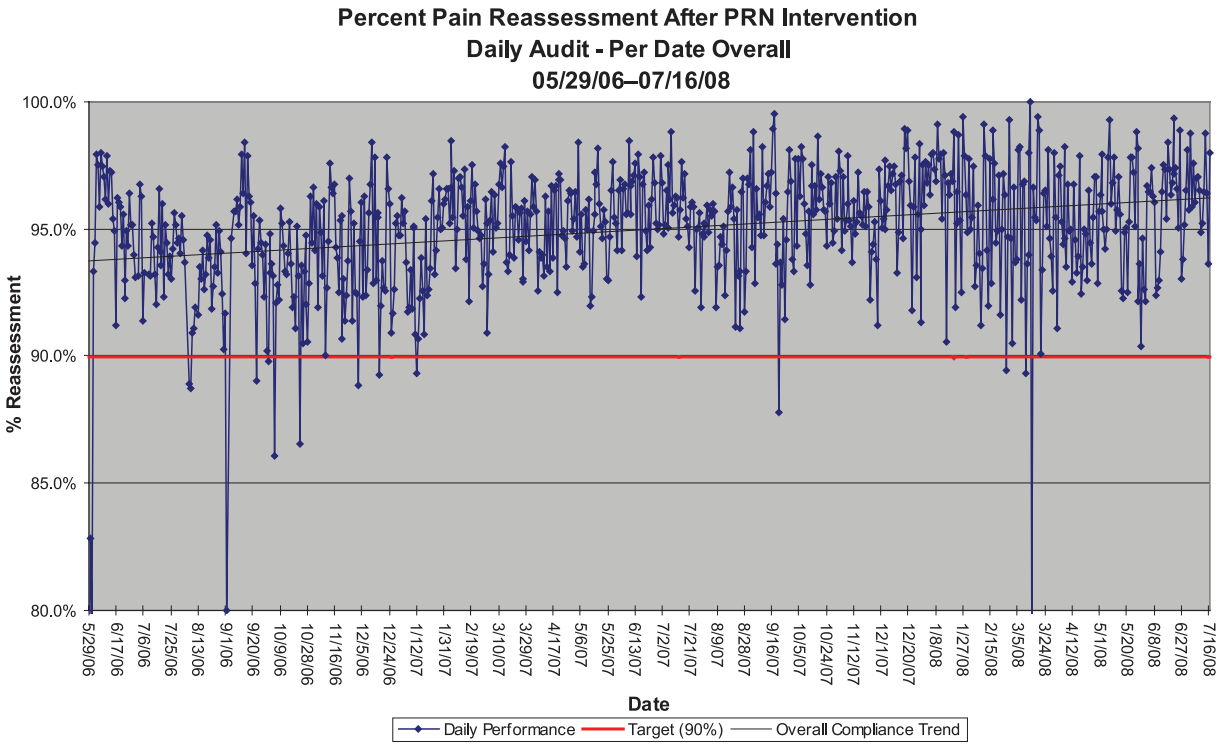

Figure 5. *Daily audits have shown stable sustainment beyond the target rate of 90%. The cumulative rate of PRN pain interventions that have an appropriately timed reassessment is 94.9% (228,448 documented reassessment for 240,745 interventions).*

will provide a means for easier performance monitoring.

It has been difficult to determine whether improved documentation of reassessments has improved patient outcomes, namely the safety or effectiveness of pain management. No changes in pain management error reporting have been detected in our online safety reporting tool used to detect potential harmful situations and report adverse medical events. Although we have seen a continued trend of improved patient satisfaction with how well pain is controlled (Figure 6, page 516) we cannot relate these results to improved documented pain reassessments alone.

No differences have been found between increased rates of documented reassessments and average highest and lowest documented pain ratings. Despite the widespread use of numeric pain rating scales, the interpretation of change scores has only recently begun to be investigated.[28–31] A patient's pain rating may be best conceptualized as an attempt to construct meaning[32] rather than as a discrete physical sensation (intensity), and the meaning of a change in a pain rating depends on the intensity of the initial pain.[29,30,32] Therefore, we have chosen to further improve this aspect of the pain reassessment in our upcoming electronic documentation. In addition to a pain- intensity rating, the nurse will be prompted to document "pain relief" using a validated scale (none, slight, moderate, lots, complete) that has been shown to provide a good surrogate measure of patient-determined clinically important response.[32]

It is important to recognize that our primary goal and measure focused on documentation, not on actual practice or patient outcomes. Many nurses commented that they had indeed been performing and communicating reassessments, just not documenting them. Ideally, more detailed data collection, including a measure of staff response to reassessment data and rates or severity of analgesic side effects, would be useful in examining the impact of improved documentation. Additional limitations in our report include an absence of data on type of interventions provided and no examination of the relationships between pain relief and interventions in individual patients or subgroups of patient populations (for example, postoperative,

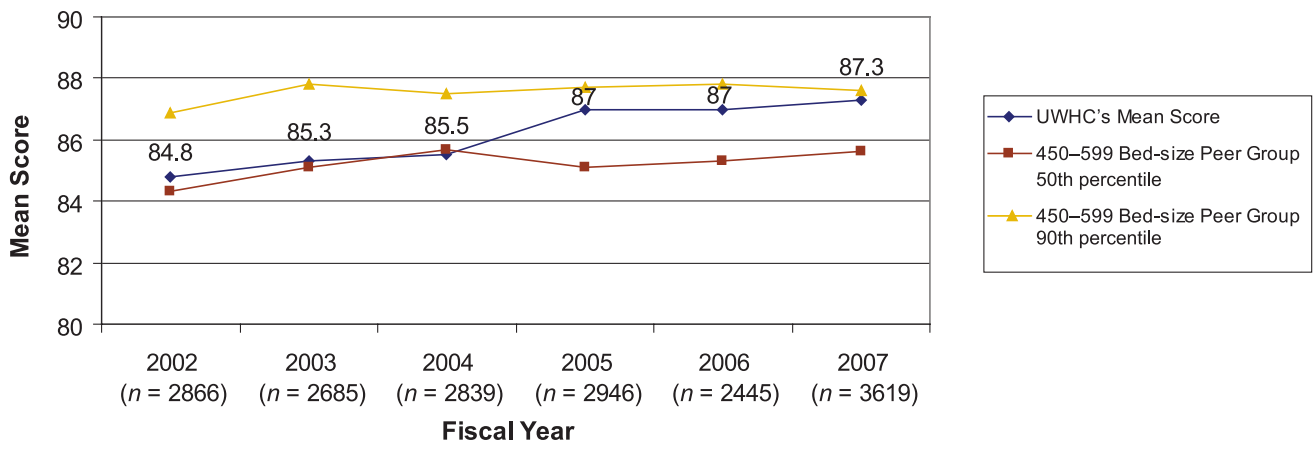

Figure 6. *Although it is difficult to relate improvements in documentation of reassessments to patient satisfaction, a stable upward trend in patient satisfaction with pain control has been noted since 2005. Data are reported by the fiscal year (July–June) of the survey return date for years 2002 to 2008. Bed-size Peer Group = A benchmark group consisting of all hospitals in the vendor's database with 450–599 beds; those of similar size to the University of Wisconsin Hospital & Clinics (UWHC). Percentile ranks are fiscal fourth quarter comparisons from the vendor's quarterly reports and are included as an indicator of the type of scores required to achieve a full year's 50th and 90th percentile rank.*

medical non-cancer, cancer). However, such data collection was beyond the scope and limitations of this QI project and has been reported elsewhere in more focused pain treatment QI studies at our organization.[33]

Questions have been raised about the reassessment and documentation policy's impact and potential burden on nursing practice. Despite the fact that the reassessment documentation audits only captured the PRN pain interventions provided during the first 24 hours after initiation of a new or changed pain management regimen (an estimated 30% of all pain interventions), the total number of PRN interventions requiring documentation provided by our staff is voluminous—more than 300 per day. By nature of their patient population, the surgical units clearly bear the larger burden of this labor. The total number of interventions necessitating a documentation occurrence reflects an enormous amount of nursing work. Further study is warranted to exmaine whether the intensity of our requirement for pain reassessment documentation ultimaely facilitates the safety and effectiveness of pain management.

Unfortunately, routinely measuring pain as a "fifth vital sign" has not been shown to increase the quality of pain management.[34]

This is likely to be true of simply increasing documentation of reassessment after interventions, particularly if it is treated as a nuisance and no action is taken in response to the patient's pain information. An individual's response to an intervention entails not only change in pain intensity but also side effects and adverse effects, as well as the impact of pain and treatment effects on a patient's physical and emotional function and quality of life.

High-quality pain management is a complex process that goes beyond appropriate screening, assessment, and reassessment to include interdisciplinary, collaborative care planning that includes patient input; appropriate treatment that is efficacious, cost-conscious, culturally and developmentally appropriate, and safe; and access to specialty care as needed.[12] Our response to pain-intensity ratings must be balanced and rational, and we must do more than simply increase opioid therapy, a limited unimodal response that may cause harm.

Conclusion

Addressing the Joint Commission pain management standards in the context of a large-scale PDCA cycle enabled us to facilitate and sustain improvement in documentation of pain reassessments. Research is needed to better understand the impact of improved documentation on practice patterns and patient outcomes. J

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References

1. Institute for Safe Medication Practices: Pain scales don't weigh every risk. *Medication Safety Alert! Acute Care*. Jul. 24, 2002. http://www.ismp.org/Newsletters/acutecare/articles/20020724.asp (last accessed Jul. 18, 2008).

2. Rathmell J., et al.: Acute post-surgical pain management: a critical appraisal of current practice. *Reg Anesth Pain Med* 31(4 suppl. 1):S1–S42, Jul.–Aug. 2006.

3. Pain and Policy Study Group: *Achieving Balance in State Pain Policy: A Progress Report Card*. Jul. 2008. http://www.painpolicy.wisc.edu/Achieving_Balance/PRC2008.pdf (last accessed Jul. 18, 2008).

4. Kerns R.D., et al.: Veterans' reports of pain and associations with ratings of health, health-risk behaviors, affective distress, and use of the healthcare system. *J Rehabil Res Dev* 40:371–379, Sep.–Oct. 2003.

5. Dahl J.L., Gordon D.B.: The Joint Commission standards: A progress report. *American Pain Society Bulletin* 12:1, 11–12, Nov.–Dec. 2002.

6. The Joint Commission: *2008 Comprehensive Accreditation Manual for Hosptials: The Official Handbook*. Oakbrook Terrace, IL: Joint Commission Resources, 2007.

7. Gordon D.B., Dahl J.L.: Quality improvement challenges in pain management. *Pain* 107:1–4, Jan. 2004.

8. Taylor S., et al.: Has the pendulum swung too far in postoperative pain control? *Am J Surg* 186:472–475, Nov. 2003.

9. Vila H., et al.: The efficacy and safety of pain management before and after implementation of hospital-wide pain management standards: Is patient safety compromised by treatment based solely on numerical ratings? *Anesth Analg* 101:474–480, Aug. 2005.

10. Personal communication between the author [D.B.G.] and Richard Croteau, Executive Director, Patient Safety Initiatives, The Joint Commission, Oakbrook Terrace, Illinois, Sep. 21, 2006.

11. Gordon D.B., et al.: The use of "as-needed" range orders for opioid analgesics in the management of acute pain: A consensus statement of the American Society for Pain Management Nursing and the American Pain Society. *Pain Manag Nurs* 5:53–58, Jun. 2004.

12. Gordon D.B., et al.: American Pain Society recommendations for improving the quality and acute and cancer pain management: American Pain Society Quality of Care Task Force. *Arch Intern Med* 165:1574–1580, Jul. 2005.

13. Cohen M.Z., et al.: Cancer pain management and the JCAHO's pain standards: An institutional challenge. *J Pain Symptom Manage* 25:519–527, Jun. 2003.

14. Gelinas C., et al.: Pain assessment and management in critically ill intubated patients: A retrospective study. *Am J Crit Care* 13:126–135, Mar. 2004.

15. Bucknall T., Manias E., Botti M.: Nurses' reassessment of postoperative pain after analgesic administration. *Clin J Pain* 23:1–7, Jan. 2007.

16. Carroll K.C., et al.: Pain assessment and management in critically ill intubated patients: A multisite study. *Am J Crit Care* 8:105–117, Jul. 1999.

17. Faries J., et al.: Systematic pain records and their impact on pain control: A pilot study. *Cancer Nurs* 14:306–313, Dec. 1991.

18. Voigt L., Paice J.A., Pouliot J.: Standardized pain flowsheet: Impact on patient-reported pain experiences after cardiovascular surgery. *Am J Crit Care* 4:308–313, Jul. 1995.

19. Kokki H., et al.: Pharmacokinetics of oxycodone after intravenous, buccal, intramuscular and gastric administration in children. *Clin Pharmacokinet* 43(9):613–622, 2004.

20. Lotsch J.: Pharmaokinetic-pharmacodynamic modeling of opioids. *J Pain Symptom Manage* 29(suppl. 5):S90–S103, May 2005.

21. Kim I., et al.: Plasma and oral fluid pharmacokinetics and pharmacodynamics after oral codeine administration. *Clin Chem* 48:1486–1496, Sep. 2002.

22. Angst M.S., et al.: Pharmacodynamics of orally administered sustained-release hydromorphone in humans. *Anesthesiology* 94:63–73, Jan. 2001.

23. Serlin R., et al.: When is cancer pain mild, moderate, or severe? Grading pain severity by its interference with function. *Pain* 61:277–284, May 1995.

24. Clinical Practice Guideline Working Group, Veterans Health Administration: *Management of Postoperative Pain.* Oct. 2001. http://www.oqp.med.va.gov/ cpg/PAIN/G/PAIN_about.htm (last accessed Jul. 21, 2008).

25. National Quality Measures Clearinghouse: Complete Summary. *Assessment and Management of Acute Pain.* http://www.qualitymeasures.ahrq.gov/summary/summary.aspx?ss=1&doc_id=9025 (last accessed Jul. 18, 2008).

26. Registered Nurses Association of Ontario: *Assessment and Management of Pain.* 2002. http://www.rnao.org/Page.asp?PageID=924&ContentID=720 (last accessed Jul. 18, 2008).

27. Detmer S.S.: Coaching your unit team for results. *Semin Nurse Manag* 10:189–195, Sep. 2002.

28. Farrar J.T.: What is clinically meaningful: Outcome measures in pain clinical trials. *Clin J Pain* 16(Suppl. 2):S106–S112, 2000.

29. Cepeda M.S., et al: What decline in pain intensity is meaningful to patients with acute pain? *Pain* 10:151–157, Sep. 2003.

30. Jensen M.P., Chen C., Brugger A.M.: Interpretation of visual analog scale ratings and change scores: A reanalysis of two clinical trials of postoperative pain. *J Pain* 4:407–414, Sept. 2003.

31. Williams A.C. dC., Davies H.T.O., Chadury Y.: Simple pain rating scales hide complex idiosyncratic meanings. *Pain* 85:457–463, Apr. 2000.

32. Farrar J.T., Berlin J.A., Strom B.L.: Clinically important changes in acute pain outcome measures: A validation study. *J Pain Symptom Manage* 25:406–411, May 2003.

33. Illgen R., et al.: Prospective analysis of a novel long-acting oral opioid analgesic regimen for pain control after total hip and knee arthroplasty. *J Arthroplasty* 21:814–820, Sep. 2006.

34. Mularski R., et al.: Measuring pain as the 5th vital sign does not improve the quality of pain management. *J Gen Intern Med* 21:607–612, Jun. 2006.