



Published in final edited form as:

Clin Ther. 2013 November ; 35(11): 1728–1732. doi:10.1016/j.clinthera.2013.10.001.

PAIN AS THE 5TH VITAL SIGN: EXPOSING THE VITAL NEED FOR PAIN EDUCATION

Natalia E. Morone, MD, MS^{1,2,3} and Debra K. Weiner, MD^{1,3,4,5,6}

¹Geriatric Research Education and Clinical Center, Veterans Affairs Pittsburgh Healthcare System, Pittsburgh, PA

²Division of General Internal Medicine, Center for Research on Health Care, University of Pittsburgh School of Medicine, Pittsburgh, PA

³Clinical and Translational Sciences Institute, University of Pittsburgh School of Medicine, Pittsburgh, PA

⁴Division of Geriatrics, University of Pittsburgh School of Medicine, Pittsburgh, PA

⁵Department of Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA

⁶Department of Anesthesiology, University of Pittsburgh School of Medicine, Pittsburgh, PA

Abstract

In clinical practice pain as the 5th vital sign has proven to be more complex to assess, evaluate, and manage than originally anticipated. It has also had some serious consequences which were never intended. Associated with the national push to adequately manage patients in pain has been a rise in prescription opioids as well as a rise in opioid related death. Guided by pain as the 5th vital sign mandates, patients report pain and expect their providers to respond. Many clinicians do not know what the appropriate response is because they lack adequate education in the approach, examination, and management of patients in pain. Pain education starting in medical school and through postgraduate training usually involves piecemeal incorporation of pain topics into existing curricula or clinical rotations, without devoted stand-alone class-time. The net effect has been a serious deficit in clinical skills for the evaluation and management of the patient in pain. When both patients and clinicians view pain as purely a sensory experience then management is necessarily limited to managing the sensation (and the increased prescription of pain medications). This is likely to result in a suboptimal patient response, especially when managing chronic pain. Pain evaluation and management is further complicated in the older adult who requires a different approach to take into account comorbidities, including dementia, and increased adverse consequences of prescription medications. Expanding pain education and training is critical to remedying these problems. Attention must move beyond the focus of pain as a 5th vital sign to a focus on education and training in the evaluation, examination, and management of the patient's pain report.

Corresponding Author: Natalia E. Morone, MD, MS, 7180 Highland Drive, mail code OAGR-H, Pittsburgh, PA 15206, Phone: 412-954-4915, Fax: 412-954-4922, Natalia.Morone@va.gov.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Keywords

pain; vital sign; pain assessment; pain education; older adult

The push to evaluate pain in patients as exemplified by the 5th vital sign has exposed serious deficits in provider education and training in pain assessment and management as patient's report of pain level has become commonplace in clinical practice. Given the rapid rise in prescription opioid medications suggests providers are trying to address their patient's pain by prescribing opioids. But the rise in prescription opioids has also been associated with a rise in prescription opioid unintended deaths. In clinical practice the 5th vital sign has proven to be more complex to assess, evaluate, and manage than originally anticipated. Expanding pain education and training is critical to remedying some of the issues the routine report of pain by patients has uncovered.

INTRODUCTION OF PAIN AS THE 5TH VITAL SIGN AND CLINICIAN RESPONSE

With the concern for the under management of pain, Dr. James Campbell in his 1995 Presidential Address to the American Pain Society, presented the idea of evaluating pain as a vital sign.¹ By elevating it to the level of essential information he hoped it would be properly evaluated and managed. This idea rapidly caught on nationally and has been adopted by the Veterans Health Administration (VHA) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO, now called simply The Joint Commission). The VHA created an extensive tool kit to implement pain assessment and management in all their patients.² JCAHO recommended that pain be assessed in all patients (JCAHO Standard PE1.4, 2000). Given the influence of both of these organizations it is not surprising that clinics and hospitals across the country now assess pain routinely. In all inpatient settings, pain scores are used as a quality measure especially in Hospital Consumer Assessment of Healthcare Providers reports.

How may clinicians have responded to the information they see at every patient encounter regarding the presence of pain? Having the knowledge that their patients are in pain, would often prompt clinicians to react with a response to treat the pain. This has led to an increase in opioid medication prescribing when acetaminophen and NSAIDs fail. Dispensing opioids has almost doubled according to National Health and Nutrition Examination Survey data showing that from 1988–1994, 3.2 percent of Americans reported using opioids for pain while from 2005–2008, 5.7 percent reported use.³ This significant increase has been associated with serious consequences including an estimated 40 deaths per day due to prescription opioids.⁴⁻⁵

Why would clinician opioid prescriptions increase so significantly? Guided by the Hippocratic Oath, the intention is to do good, not harm. Guided by pain as the 5th vital sign mandates, patients report pain and expect their providers to respond. Many clinicians do not know what the appropriate response is because they lack adequate education in the approach, examination, and management of patients in pain and do not know that prescribing opioids may be an incomplete response. Pain education starting in medical school and through post-graduate training usually involves piecemeal incorporation of pain topics into existing curricula or clinical rotations, without devoted stand-alone class-time. The net effect has been a serious deficit in clinical skills for the evaluation and management of the patient in pain.⁶⁻⁸

Another likely cause for the increased prescription of opioids is that writing a prescription is efficient. Primary care clinicians and emergency department physicians commonly prescribe opioid medications. They have arguably the least amount of time to devote to their patient's pain. A typical office visit in primary care is 15–20 minutes and during that time the clinician must not only address the patient's chief complaint but must also address the numerous quality indicators at each visit: Are blood pressure and weight at goal? Are all preventive measures up to date such as immunizations and cancer screenings? Is recommended blood work due? Additionally, these measures are tied to achieving quality goals set forth by the National Committee for Quality Assurance whereas pain assessment and management is not. Under these pressures clinicians may turn to prescribing an opioid medication as an efficient response to their patient's pain vital sign.

The increase in prescription of opioids underscores the mistaken view that pain is a unidimensional problem. When both patients and clinicians view pain as a purely sensory experience then management is necessarily limited to the sensation (and the prescription of pain medications). This approach is likely to result in a suboptimal patient response, especially when managing chronic pain. When clinicians fail to recognize the effects of pain on mood (and vice versa), cognition, and function they may label patients who do not respond to pain management as drug seekers and feel frustrated with each patient encounter. From the patient's perspective, they may feel their clinician is neglecting or ignoring their pain complaint. This may further exacerbate negative mood and cognitive reactions to pain, further amplifying the suffering of pain and leading to increasingly confrontational patient-provider interactions. This vicious cycle is distressing to both patient and provider.

When a patient reports pain, the provider sometimes orders a “diagnostic” test that (s)he hopes will guide management. One of the most common pain problems is low back pain around which healthcare expenditure has skyrocketed over the past decade without improvement in patient outcomes.⁹ Providers are relying on procedures to evaluate patients in pain rather than talking with and examining them in an effort to disentangle the multiple contributors that are likely contributing to their suffering. A cultural transformation in the way clinicians and the public view pain and its management is required to improve efforts to “prevent, assess, treat, and better understand pain of all types”, as recommended by the Institute of Medicine's report *Relieving Pain in America*.¹⁰

MEASURING PAIN AT THE PATIENT ENCOUNTER

Pain is usually measured with the one-dimensional pain Numeric Rating Scale (NRS).¹¹ As recommended in the VHA tool kit “On a scale of zero to ten, where zero means no pain and ten equals the worst possible pain, what is your current pain level?” This simple question, while quick and easy to assess, only provides a report of the sensory experience of pain. If clinicians only receive a report of the sensory experience of pain, how are they (or patients) ever supposed to change their attitude towards pain? How are clinicians supposed to adopt a multidimensional approach? Nevertheless, the NRS opens the doorway for clinicians to further assess their patient's pain report, but they need to be provided with the education to do this comprehensively. The American Pain Society, who put forth the idea of the 5th vital sign themselves recommend a multidimensional approach to pain evaluation and recommend measures such as the Brief Pain Inventory or the Short-Form McGill Pain Questionnaire.^{12–13} Both of these forms take 5 minutes to complete, can be self-administered, and provide information on pain intensity, pain interference (in both physical and/or social activity, sleep, or relationships), or mood/cognitive effects of pain.

While measuring pain at every clinical encounter highlights pain as important, calling it a vital sign fails to recognize the fundamental differences between acute and chronic pain.

While it may be appropriate to consider rating of acute pain (that which is destined to naturally abate) a vital sign, chronic pain should be viewed in a different light. Chronic pain is not a vital sign, but a final common pathway resulting from the convergence of typically numerous biopsychosocial contributors. Further, unlike a vital sign, pain is subjective. As such, we cannot accept the patient's pain rating at face value since assessment of pain with the NRS is not sufficient, as we noted above. We must interpret its meaning. Failure to do so can result in significant morbidity. Consider the 85 year old patient with dementia and low back pain for many years who, because of the pain as the 5th vital sign mandate, reported 6/10 pain at each visit to his primary care provider. When a series of nonpharmacologic modalities and nonopioid analgesics resulted in no change in his pain rating, opioids were initiated and titrated to the point of his becoming unconscious and requiring hospitalization. Following hospital discharge he reported pain (only when asked), although his wife of 60 years indicated that he was not suffering; he was simply "talking about the pain." We treated him by tapering off the opioid and prescribing day care for distraction from pain and caregiver respite. Readers of this commentary can undoubtedly recall numerous cases where pain reporting could not be equated with pain suffering and where analgesic prescribing imposed significant patient risk such as sedation and delirium.

For patients with chronic pain, unraveling the contributors to a patient's pain intensity rating means the clinician must spend time assessing pain interference, mood, and social and psychological factors. The multiple physical contributors also must be evaluated. This is especially important for the frail older adult. Patients with chronic pain who are older are more psychologically robust and have better coping skills than their younger counterparts.¹⁴ We have found them to have very low pain catastrophizing scores, suggesting that they do not have exaggerated negative cognitions and emotions toward pain, and high mindfulness scores, suggesting they are able to purposefully and nonjudgmentally engage in the present moment.¹⁵⁻¹⁶ We have demonstrated that in older adults with low back pain, the duration of pain is inversely associated with self-reported/performance-based assessment of disability. That is, the longer the pain, the less disabled is the older adult.¹⁷ In another of our studies, severity of low back pain was not associated with disability risk, that is, gait speed.¹⁸ When considering how to manage older adults with chronic non-cancer pain, these data should be juxtaposed against the unacceptable risks associated with many analgesics and invasive procedures that are frequently prescribed to treat these patients.¹⁹⁻²⁴ Further, data indicate that the "bio" part of biopsychosocial chronic pain conditions in older adults are themselves multifactorial, requiring time and skill to identify²⁵⁻²⁶ and, therefore, to appropriately tailor treatment.

Pain is complex and by trying to box it into a vital sign may unwittingly diminish the importance of a comprehensive pain assessment. While the 5th vital sign helps to recognize a patient is in pain this information is not complete. What is necessary is that clinicians possess the foundational knowledge critical for untangling the contributors to pain and the knowledge of management options based on these contributors.

Since pain is now routinely measured due to efforts of the VHA and JCAHO, the NRS is also asked of patients who are seeing physicians that have little to do with pain management on a day to day basis. So what is the role of pain assessment in these settings? There is not a simple answer, but it should be considered that assessing pain at every patient encounter may not be reasonable. Careful thought needs to go into the purpose of the pain assessment and what will be done with the pain assessment once the clinician receives it. This brings us full circle to the importance of provider education and management of pain.

Implementation of pain as the 5th vital sign has created provider awareness without preparedness. In recognition of the crisis that the country currently faces due to increase in

prescription opioids and death, as well as the roots of this crisis in the lack of health care provider education and training in pain diagnosis and management the NIH Pain Consortium released a call for proposals for Centers of Excellence in Pain Education (CoEPE). As one of 12 recipients of these awards we are developing innovative, interactive clinical pain cases. The cases target common pain and pain-related scenarios seen in the clinical setting (i.e., chronic low back pain, fibromyalgia and comorbid myofascial pain, opioid misuse, knee osteoarthritis pain complicated by dementia, metastatic cancer pain, and headaches) but include a comprehensive, multidimensional approach that also reviews pain theory, the physical exam, and management of the various contributors to pain. The target audience is not only medical, but also nursing, pharmacy, physical therapy, and dental students. The production of cases from our own and other CoEPEs has begun and will continue over the next two years. It is projected that cases will start becoming available for consumption and implementation in the spring of 2014. They will be accessible at: <http://painconsortium.nih.gov/CoEPEs>

In summary, the introduction of routine assessment of pain during the patient encounter has been an effective method of bringing it to the provider's attention and should continue. However, the response to the 5th vital sign has exposed serious deficits in provider education and training in comprehensive pain evaluation, examination, and management. Attention must now move from collecting pain ratings to educating and training health care providers in the further evaluation and management of the 5th vital sign. Only then can a true cultural transformation begin.

Acknowledgments

This material is the result of work supported with resources and the use of facilities at the Veterans Affairs Pittsburgh Healthcare System. The contents of this commentary do not represent the views of the Department of Veterans Affairs or the United States Government. This material is also supported by funding awarded to Centers of Excellence in Pain Education by the Altarum Institute who received funding from the NIH Pain Consortium (HHSN271201100111U).

References

1. Campbell JN. APS 1995 Presidential address. Pain Forum. 1996; 5:85–8.
2. [Accessed July 23, 2013] Pain as the 5th Vital Sign Toolkit. 2000. at <http://www.va.gov/painmanagement/docs/toolkit.pdf>
3. IOM (Institute of Medicine). Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Washington, DC: The National Academies Press; 2011. p. 129-130.
4. Centers for Disease Control and Prevention. Vital signs: Overdose of prescription opioid pain relievers - United States 1999–2008. MMWR. 2011; 60:1487–92. [PubMed: 22048730]
5. Substance Abuse and Mental Health Services Administration Office of Applied Studies. The DAWN Report: Trends in emergency department visits involving nonmedical use of narcotic pain relievers. Rockville, MD: U.S. Department of Health and Human Services; 2010 Jun 18.
6. Weiner DK, Turner GH, Hennon JG, Perera S, Hartmann S. The state of chronic pain education in geriatric medicine fellowship training programs: results of a national survey. J Am Geriatr Soc. 2005; 53:1798–805. [PubMed: 16181182]
7. Cayea D, Perera S, Weiner DK. Chronic low back pain in older adults: What physicians know, what they think they know, and what they should be taught. J Am Geriatr Soc. 2006; 54:1772–7. [PubMed: 17087707]
8. Mezei L, Murinson BB. Pain education in North American medical schools. J Pain. 2011; 12:1199–208. [PubMed: 21945594]
9. Martin BI, Deyo RA, Mirza SK, et al. Expenditures and health status among adults with back and neck problems. JAMA. 2008; 299:656–64. [PubMed: 18270354]

10. IOM (Institute of Medicine). *Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research*. Washington, DC: The National Academies Press; 2011. p. 49
11. Jensen MP, Karoly P, Braver S. The measurement of clinical pain intensity: a comparison of six methods. *Pain*. 1986; 27:117–26. [PubMed: 3785962]
12. Cleeland, CS. Measurement of pain by subjective report. In: Chapman, CR.; Loeser, JD., editors. *Issues in pain management*. New York: Raven Press; 1989. p. 391-403.
13. Melzack R. The short-form McGill Pain Questionnaire. *Pain*. 1987; 30:191–7. [PubMed: 3670870]
14. Wittink HM, Rogers WH, Lipman AG, et al. Older and younger adults in pain management programs in the United States: differences and similarities. *Pain Med*. 2006; 7:151–63. [PubMed: 16634728]
15. Morone NE, Rollman BL, Moore CG, Li Q, Weiner DK. A mind-body program for older adults with chronic low back pain: results of a pilot study. *Pain Med*. 2009; 10:1395–407. [PubMed: 20021599]
16. Weiner DK, Perera S, Rudy TE, Glick RM, Shenoy S, Delitto A. Efficacy of percutaneous electrical nerve stimulation and therapeutic exercise for older adults with chronic low back pain: a randomized controlled trial. *Pain*. 2008; 140:344–57. [PubMed: 18930352]
17. Weiner DK, Rudy TE, Kim YS, Golla S. Do medical factors predict disability in older adults with persistent low back pain? *Pain*. 2004; 112:214–20. [PubMed: 15494203]
18. Weiner DK, Haggerty CL, Kritchevsky SB, et al. How does low back pain impact physical function in independent, well-functioning older adults? Evidence from the Health ABC Cohort and implications for the future. *Pain Med*. 2003; 4:311–20. [PubMed: 14750907]
19. Cloyd JM, Acosta FL Jr, Ames CP. Complications and outcomes of lumbar spine surgery in elderly people: a review of the literature. 2008; 48(12):1560–5.56:1318–27.
20. Deyo RA, Mirza SK, Martin BI, Kreuter W, Goodman DC, Jarvik JG. Trends, major medical complications, and charges associated with surgery for lumbar spinal stenosis in older adults. *JAMA*. 2010; 303:1259–65. [PubMed: 20371784]
21. American Geriatrics Society updated Beers Criteria for potentially inappropriate medication use in older adults. Agency for Healthcare Research and Quality (AHRQ); at <http://www.guideline.gov/content.aspx?id=37706> [Accessed 7/22/2013]
22. Weiner DK, Hanlon JT, Studenski SA. Effects of central nervous system polypharmacy on falls liability in community-dwelling elderly. *Gerontology*. 1998; 44:217–21. [PubMed: 9657082]
23. Shorr RI, Griffin MR, Daugherty JR, Ray WA. Opioid analgesics and the risk of hip fracture in the elderly: codeine and propoxyphene. *J Gerontol*. 1992; 47:M111–5. [PubMed: 1624693]
24. Abrahamsen B, Brixen K. Mapping the prescriptiome to fractures in men--a national analysis of prescription history and fracture risk. *Osteoporos Int*. 2009; 20:585–97. [PubMed: 18690484]
25. Weiner DK, Schmader KE. Postherpetic pain: more than sensory neuralgia? *Pain Med*. 2006; 7:243–9. discussion 50. [PubMed: 16712624]
26. Weiner DK, Sakamoto S, Perera S, Breuer P. Chronic low back pain in older adults: prevalence, reliability, and validity of physical examination findings. *J Am Geriatr Soc*. 2006; 54:11–20. [PubMed: 16420193]