

The Michigan Opioid Safety Score (MOSS): A Patient Safety and Nurse Empowerment Tool

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Safely treating postsurgical pain continues to be a challenge, despite more than a decade of focus on its appropriate management. Overuse of opioids and undertreatment of pain continues, as does insufficient monitoring of patients at risk for opioid and pain-related complications. It is clear that relying only on numeric subjective pain scores is inadequate when treating pain. Appropriate bedside evaluation should also include measures of respiration and sedation. Furthermore, assessment of risk should be done with initial pain assessment and continued throughout the pain management course. The recently developed Michigan Opioid Safety Score integrates health risks and objective measures of respiratory rate and sedation, while encouraging the use of multimodal analgesia for all patients.

Keywords: *opioid related safety, multimodal analgesia, nursing empowerment.*

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“EXCUSES FOR INADEQUATE pain control appear to have run their course and will no longer be accepted because poor pain control is unethical, clinically unsound, and economically wasteful.”¹ Thus starts an article in the *Journal of the American Medical Association (JAMA)* describing The Joint Commission’s (TJC) efforts to treat pain as the fifth vital sign.¹ The “fifth vital sign” model came initially from Veterans Administration policies and American Pain Society discussions, both of which outline ongoing problems with pain control including education, standardization, and safety.

Unfortunately, the catch-phrase led the health care team to treat pain as a static number, resulting in patient harm. Vila et al found that when pain was treated based purely on a numeric scale (as the “fifth vital sign”), the incidence of adverse events related to opioids increased by greater than 100%.² More recently, Lucas et al examined data of the American College of Surgeons Committee on Trauma and found that the incidence of inpatient death related to opioid overuse similarly increased significantly following implementation of “fifth vital sign” recommendations.³

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The Anesthesia Patient Safety Foundation convened a workshop in 2006 to examine the causes of increased morbidity and mortality from opiates as reported in the literature.⁴ The dangers of postoperative opioids were summarized and published in a newsletter format. A repeat workshop in 2011 resulted in a white paper entitled “No Patients Shall be Harmed by Opioid-Induced Respiratory Depression.”⁵ Nevertheless, during the decade following the initial “fifth vital sign” proclamation, no significant organized changes

were made to improve pain care while reducing adverse events.

The phrase “pain as the 5th vital sign” was initially promoted by the American Pain Society to elevate awareness of pain treatment among health care professionals. The phrase “pain as the 5th vital sign” was initially promoted by the American Pain Society to elevate awareness of pain treatment among health care professionals. Vital signs are taken seriously. If pain were assessed with the same zeal as other vital signs are, it would have a much better chance of being treated properly. We need to train doctors and nurses to treat pain as a vital sign. Quality care means that pain is measured and treated.

—James Campbell, MD, in his Presidential Address to the American Pain Society on November 11, 1996

In August of 2012, TJC released the Sentinel Event Alert entitled “Safe Use of Opioids in Hospitals.”⁶ In the alert, TJC outlined the increasing incidence of opioid-related adverse events, as well as the continuing problems with inadequate management of pain. The Alert delineated risk factors for adverse events (based on internal data) and made solid recommendations for education and training, appropriate patient monitoring, effective tools and processes, and the appropriate use of safer technologies. By describing means to reduce complications and improve pain management, the Alert outlines the basics for development of an evidence-based roadmap for improving patient satisfaction and reducing cost.

In conjunction with the Michigan Hospital and Healthcare Association and Michigan Society of Anesthesiologists, the authors created a patient safety tool designed to maximize the use of multimodal analgesia, identify patients at risk for opioid-related harm, and move beyond a simple numeric rating scale for pain assessment.

Assessment Tools

It is generally accepted that recognition and assessment be the initial steps used to treat pain. Subjec-

tive measures such as numeric pain rating scales as well as objective measures of sedation, breathing, and health risk have all been described independently as means of improving safety.

Numeric rating scales for pain intensity have been the standard for nursing assessment for over a decade, with numerical, graphical, and pediatric modifications being commonly used world-wide. Unfortunately, patients’ subjective reports of pain may trump objective nursing observations of patient response to opioids. For example, in the Vila study mentioned previously, 15 of 16 patients who experienced opioid-related adverse events were described as sedated or confused immediately before receiving further opioid therapy that led to the adverse event.²

Serial sedation assessment using validated assessment scales has been shown to increase patient safety.⁷ These include the Pasero Opioid-Induced Sedation Scale (POSS) and the Richmond Agitation and Sedation Scale^{6,8-10} Although each has been used successfully during the treatment of patients receiving opioid medications, their use has not been tied to continuation or discontinuation of treatment at the point of care.

Respiratory depression is usually described in terms of decreased respiratory rate (< 10 breaths/minute). Although respiratory depression is less common than sedation, it is the most serious of opioid-related complications and associated with significant mortality. In 2011, the American Society for Pain Management Nursing released guidelines on monitoring for opioid-induced sedation and respiratory depression, with suggestions that serial sedation and respiratory assessments be done to evaluate patient responsiveness during opioid therapy by any route of administration.⁹ Most recently, the American Society of PeriAnesthesia Nurses published practice recommendations calling for the assessment of sedation in the postanesthesia care unit (PACU).¹⁰

Patient health factors have also been described as an important variable in determining opioid-related risk, with TJC providing a list of patient types especially vulnerable to the respiratory depressant properties of these medications.⁶ Not surprisingly, those with sleep apnea, obesity, or a snoring history are at risk while less obvious

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