



ASPMN Position Statement

Monitoring for Opioid-Induced Advancing Sedation and Respiratory Depression in Adults

Issue Addressed

Opioid-induced unintended advancing sedation (OIUAS) and opioid-induced respiratory depression (OIRD) can lead to serious consequences (e.g., hypoxic and anoxic brain injury with subsequent death) in hospitalized adult patients and have negative effects on healthcare systems (Fouladpour, Jesudoss, Bolden, Shaman, & Auckley, 2016; Overdyk et al., 2014; Weingarten, Chong, Schroeder, & Sprung, 2016). Over 50% of patients admitted to hospitals receive systemic and/or neuraxial opioid medications, and between 0.003% – 4.2% of those will experience an opioid-related adverse event (defined by naloxone administration or an opioid-related adverse drug event diagnosis code) including respiratory depression (Davis et al., 2017; Herzig, Rothberg, Cheung, Ngo, & Marcantonio, 2014; Kessler, Shah, Gruschkus, & Raju, 2013; Rosenfeld et al., 2016). Patients who experience an adverse opioid event are estimated to have 55% longer hospital stays, 47% higher costs of care, 36% increased risk of 30-day readmissions, with 3.4 times greater risk of inpatient mortality (Kessler et al., 2013). In cases of death or serious anoxic brain injury from an opioid-related event resulting in litigation, hospitals have paid financial penalties on average of \$2.5 million [range \$650,000 - \$7.7 million] (Fouladpour et al., 2016). Although opioid prescribing nationally has decreased since 2011, opioids remain a key component of multimodal perioperative analgesia (Jahr et al., 2017).

Background of Issue

The continuing problem of opioid-related adverse events in hospitals has been a major focus by The Joint Commission (TJC), the Institute for Healthcare Improvement (IHI), and Centers for Medicaid and Medicare Services (CMS) (Centers for Medicare and Medicaid Services, 2014; Institute for Healthcare Improvement, 2012; The Joint Commission, 2017). In 2011, the American Society for Pain Management Nursing (ASPMN) published guidelines on monitoring for opioid-induced sedation and respiratory depression (Jarzyna et al., 2011). Despite these and other guidelines addressing how to assess, prevent, and manage OIUAS and OIRD, these serious adverse events continue to occur.

Policy or Position Developed, Recommended, or Adopted

In March 2019, the ASPMN Board of Directors approved and adopted the revisions to the 2011 ASPMN recommendations for best practices assessing and monitoring patients to avoid adverse events. It is strongly recommended that all clinicians read the entire manuscript that includes the rationale for each recommendation and strategies for implementation. The manuscript was authored by Junquist and colleagues in 2020, and is located in reference list.

A summary of the recommendations are as follows:

Recommendation 1

Pain management strategies should be individualized and aligned with peer-reviewed published evidence-based guidelines and The Joint Commission current pain standards (strong recommendation, high-level evidence).

Recommendation 2

Clinicians recognize that all hospitalized patients receiving systemic (e.g., transdermal, IV, oral) or neuraxial opioids for acute pain management are at risk of OIUAS and OIRD. Some patients

are at high-risk for opioid-induced adverse events (strong recommendation, high level evidence).

Recommendation 3

All patients who will receive opioids should undergo a comprehensive assessment of level of individual risk prior to initiation of opioid therapy. Ongoing re-assessment of risk that continues through the trajectory of clinical care is essential (strong recommendation, moderate level evidence).

Recommendation 4

Ongoing individualized patient-centric plans of care should be based on the patient's level of risk, which may change over the course of hospitalization, be developed, revised as needed, and communicated among all members of the patient care team (strong recommendation, moderate level evidence).

Recommendation 5

Clinicians should identify patients at high-risk of OIUAS and OIRD by using evidence-based criteria which includes the use of validated assessment scales/instruments (strong recommendation, high level evidence).

Recommendation 6

Clinicians employ evidence-based pain management that incorporates opioid-sparing and multimodal analgesia therapies (strong recommendation, high level evidence).

Recommendation 7

Hospital policies and procedures should reflect evidence-based and nationally published standards and ensure 1) effective communication among all members of the patient care team,

2) adequate and safe staffing ratios, and 3) purposeful hourly rounding by nursing staff (strong recommendation, weak to high levels of evidence).

Recommendation 8

The nature, timing, frequency, and intensity of monitoring practices should be based on ongoing nursing assessment and re-assessment of patient's risks and response to pain therapies.

Adaptations to the plan of care are driven by iterative assessments (strong recommendation, moderate level of evidence).

Recommendation 9

Evidence-based systematic nursing assessments for OIUAS and OIRD should be inclusive of 1) level of sedation, 2) respiratory rate and quality, and 3) oxygen saturation prior to initiation of opioid therapy, before administering an opioid dose, and at peak effect of opioid and/or other sedating medication co-administered within the therapeutic window of an opioid. Systematic nursing assessments should not be replaced with continuous electronic monitoring (strong recommendation, moderate level evidence).

Recommendation 10

All patients deemed to be at risk for OIUAS and OIRD should be evaluated for continuous electronic monitoring; and that the type of electronic monitoring be appropriate to the condition of the patient, presence of supplemental oxygen or positive airway pressure therapy, patient's response to care, patient comfort and adherence to monitoring device, and the detection capability of the technology (strong recommendation, weak level evidence).

Recommendation 11

Judicious use of naloxone should be based on patient evidence of life-threatening adverse events (strong recommendation, moderate level evidence).

Recommendation 12

Clinician education should include evidence-based and best practices for: 1) determining patient risks for OIUAS and OIRD; 2) best practices on assessing level of sedation and respiratory status; 3) use of trend monitoring as opposed to threshold monitoring when evaluating indicators for respiratory status; 4) appropriate use of positive airway pressure therapy; 5) early implementation of appropriate interventions when advancing sedation and respiratory depression are imminent: and 6) appropriately educating patients/ family members who want to know how to participate in safety efforts. (strong recommendation, weak level evidence).

Recommendation 13

Hospital leadership should support the development of practice and administrative policies and procedures that outline the implementation of strategies focusing on: 1) clinician, patient, and family awareness of and strategies to avoid the problem; 2) education of clinicians, patient, and family on risk assessment and adaptation of individualized monitoring procedures and policies; 3) proper training on the use of electronic monitoring systems with potential use of risk alerts within electronic health record systems. (strong recommendation, moderate level evidence).

The panel recommends the development of evidence-based policies and procedures that support clinicians, patients and family members education about the patient's use of positive airway pressure devices to treat obstructive sleep apnea and obesity hypoventilation syndrome during hospitalization. (strong recommendation, weak level evidence).

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References

- Centers for Medicare and Medicaid Services, I. (2014). *Requirements for Hospital Medication Administration, Particularly Intravenous (IV) Medications and Post-Operative Care of Patients Receiving IV Opioids*. (March 14, 2014). Baltimore, MD.
- Davis, C., Geik, C., Arthur, K., Fuller, J., Johnston, E., Levitt, F., . . . Walroth, T. (2017). A Multisite Retrospective Study Evaluating the Implementation of the Pasero Opioid-Induced Sedation Scale (POSS) and Its Effect on Patient Safety Outcomes. *Pain Management Nursing, 18*(4), 193-201. doi:10.1016/j.pmn.2017.03.006
- Fouladpour, N., Jesudoss, R., Bolden, N., Shaman, Z., & Auckley, D. (2016). Perioperative Complications in Obstructive Sleep Apnea Patients Undergoing Surgery: A Review of the Legal Literature. *Anesthesia and Analgesia, 122*(1), 145-151. doi:10.1213/ANE.0000000000000841
- Herzig, S. J., Rothberg, M. B., Cheung, M., Ngo, L. H., & Marcantonio, E. R. (2014). Opioid utilization and opioid-related adverse events in nonsurgical patients in US hospitals. *J Hosp Med, 9*(2), 73-81. doi:10.1002/jhm.2102
- Institute for Healthcare Improvement. (2012). *How to Guide: Prevent Harm from High-Alert Medications*. Cambridge, MA.
- Jahr, J. S., Bergese, S. D., Sheth, K. R., Bernthal, N. M., Ho, H. S., Stoicea, N., & Apfel, C. C. (2017). Current Perspective on the Use of Opioids in Perioperative Medicine: An Evidence-Based Literature Review, National Survey of 70,000 Physicians, and Multidisciplinary Clinical Appraisal. *Pain Medicine*. doi:10.1093/pm/pnx191
- Jarzyna, D., Jungquist, C. R., Pasero, C., Willens, J. S., Nisbet, A., Oakes, L., . . . Polomano, R. C. (2011). American Society for Pain Management Nursing guidelines on monitoring for opioid-induced sedation and respiratory depression. *Pain Management Nursing, 12*(3), 118-145 e110. doi:10.1016/j.pmn.2011.06.008

Jungquist, C. R., Quinlan-Colwell, A., Vallerand, A., Carlisle, H. L., Cooney, M., Dempsey, S. J., Dunwoody, D., Maly, A., Meloche, K., Meyers, A., Sawyer, J., Singh, N., Sullivan, D., Watson, C., & Polomano, R. C. (2020). American Society for Pain Management Nursing Guidelines on Monitoring for Opioid-Induced Advancing Sedation and Respiratory Depression: Revisions. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, 21(1), 7–25.

<https://doi.org/10.1016/j.pmn.2019.06.007>

Kessler, E. R., Shah, M., Gruschkus, S. K., & Raju, A. (2013). Cost and quality implications of opioid-based postsurgical pain control using administrative claims data from a large health system: opioid-related adverse events and their impact on clinical and economic outcomes. *Pharmacotherapy*, 33(4), 383-391. doi:10.1002/phar.1223

Overdyk, F., Dahan, A., Roozkrans, M., van der Schrier, R., Aarts, L., & Niesters, M. (2014). Opioid-induced respiratory depression in the acute care setting: a compendium of case reports. *Pain Manag*, 4(4), 317-325. doi:10.2217/pmt.14.19

Rosenfeld, D. M., Betcher, J. A., Shah, R. A., Chang, Y. H., Cheng, M. R., Cubillo, E. I., . . . Trentman, T. L. (2016). Findings of a Naloxone Database and its Utilization to Improve Safety and Education in a Tertiary Care Medical Center. *Pain Pract*, 16(3), 327-333. doi:10.1111/papr.12277

The Joint Commission. (2017). *Joint Commission Enhances Pain Assessment and Management Requirements for Accredited Hospitals* (7). Retrieved from <https://www.jointcommission.org/joint-commission-enhances-pain-assessment-and-management-requirements-for-accredited-hospitals/>

Weingarten, T. N., Chong, E. Y., Schroeder, D. R., & Sprung, J. (2016). Predictors and outcomes following naloxone administration during Phase I anesthesia recovery. *J Anesth*, 30(1), 116-122. doi:10.1007/s00540-015-2082-0

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ASPMN Mission Statement: The American Society for Pain Management Nursing®'s mission is to advance and promote optimal nursing care for people affected by pain by promoting best nursing practices. This is accomplished through education, standards, advocacy and research.