Preventing adverse drug events associated with opioid use

Practice improvement project enhances patient safety.

By Edward Meyer, MSN, RN-BC

IN 2012, The Joint Commission published Sentinel Event Alert Issue 49 (safe use of opioids in hospitals), highlighting the actions hospitals can take to avoid unintended consequences of opioid use among hospitalized patients. Nurses' systematic assessments of patients' sedation levels are key to preventing clinically significant respiratory depression.

Older adults are especially vulnerable to oversedation and respiratory depression when they're treated with opioids, and polypharmacy is a risk factor for adverse drug events and negative outcomes in these patients. Patients with opioid-related adverse drug events are more likely to be older, white, and male and to have multiple comorbidities.

At a hospital where 65% of patients are age 65 or older, a clinical problem was identified in the emergency department (ED): the potential danger of administering multiple medications that can decrease a patient's respiratory and mental status. At the time, nursing practice dictated that before administering an opioid, nurses should assess the patient's respiratory rate and level of consciousness. However, no standardized assessment or documentation approach was used. To address this problem, a practice improvement project was launched.

Planning

The planning phase of the project was initiated in the second quarter of 2013, when the hospital's nurse peer review committee referred recommendations for safer opioid administration to the hospital's pharmacy and therapeutics committee. Clinical nurses used that committee's recommendation to develop three goals to improve patient safety and reduce harm:

1. change opioid prescribing and administration practice
2. implement an evidence-based sedation assessment tool to effectively detect oversedation
3. streamline technology to improve opioid practice.

The clinical nurses from the nurse peer review committee spearheaded the project and investigated why patients were experiencing declining respiratory status by examining data from rapid response team (RRT) calls. They noted a correlation between patients given opioids and oversedation. A review of early 2013 RRT calls revealed a pattern of naloxone administration shortly after initiating I.V. or oral narcotics. The nurse peer review committee evaluated one of the events and determined that the outcome wasn't related to nurse performance; it was connected to larger systems issues around opioid prescribing and administration practices. For example, narcotics were being used to treat moderate and severe pain without a corresponding effort to determine the cause of the pain.

The nurse peer review committee reviewed available literature on sedation, including research studies and The Joint Commission's recommendation of the

What's POSSible

The Pasero Opioid-induced Sedation Scale (POSS) assessment tool provides interventions based on a patient's sedation level.

Level 0	Level 1	Level 2	Level 3	Level 4
Patient is sleeping or easy to rouse. The opioid dose may be increased as needed.	Patient is awake and alert. The opioid dose may be increased as needed.	Patient is slightly drowsy or easily aroused. The opioid dose may be increased as needed.	Patient is frequently drowsy, arousable, or may drift off to sleep during conversation. The patient's respiratory status should be monitored, and the opioid dose should be decreased 25% to 50%.	Patient is somnolent with minimal to no response to verbal and physical stimulation. The opioid should be stopped, and naloxone administration should be considered.

Pasero Opioid-induced Sedation Scale (POSS). (See *What's POSSible*.) Clinical nurses from the nurse practice committee agreed to trial this assessment tool in the ED, and organization leadership recognized the opportunity to use a systematic approach to safely administer opioids to a vulnerable patient population.

ED Trial

ED nurses learned how to use the POSS tool for narcotic medication administration and met in focus groups to determine how to implement it as an ED practice standard. After the trial was completed during the fourth quarter of 2013, nursing staff completed a survey. Both day- and night-shift nurses reported equal concern about oversedation, even with small doses of narcotics, especially for opioid-naïve patients. The nurses recommended that a screening tool that assesses a patient's sedation level should become a standard of care.

ED clinical nurses presented survey findings to the shared governance nursing practice improvement/education council, which agreed that a sedation assessment tool was a best practice and would offer patients an additional layer of protection. A task force composed of both clinical nurses and nurse leaders reviewed best practices and presented several evidence-based tools to the council, which selected the POSS tool. Stakeholders on the pharmacy and therapeutics and nurse practice committees granted approval for hospital-wide implementation of POSS for use before and after administering each opioid dose.

Hospital-wide integration

Integrating POSS into the hospital-wide electronic health record (EHR) was reviewed and approved by the nursing informatics council. The strategies used could be adopted by other organizations. (See *EHRs and opioid monitoring*.)

The education and information technology (IT) departments developed a 6-month education plan for all nursing units that included assessing patients' sedation levels before each opioid dose and 30 minutes after. Staff development specialists conducted unit-based education with all RNs to review the tool, offer recommendations on how to use it, and explain required documentation. Education alerts about how to use the tool in practice and document interventions were included in the EHR.

The IT and pharmacy departments created a naloxone utilization report that came directly from the automated dispensing cabinets. The report helps to accurately quantify doses per patient and trend use among providers and clinicians.

Nursing leadership became concerned that the demand for pulse oximetry monitors would increase on the inpatient units, especially on days with surgical cases. This concern proved accurate, and additional monitors were purchased.

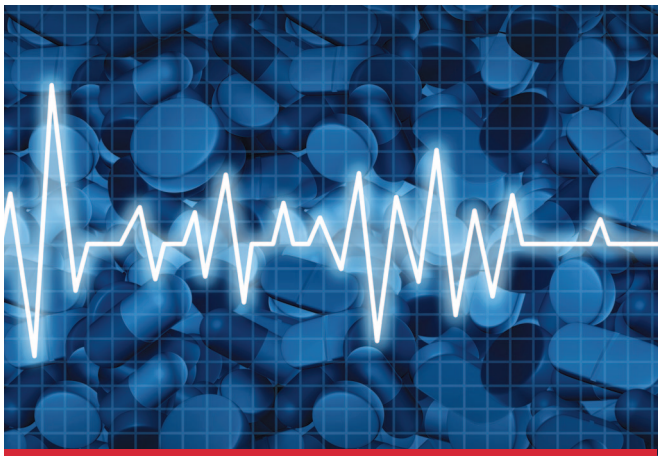
By the end of 2014, POSS tool integration into the EHR was complete. Subsequently, the nursing practice improvement/education council developed an audit tool to track the hospital's performance.

Outcomes

By 2016, POSS use increased from 76% in January to 90% in June. In 2017, sedation tracking after opioid administration was enhanced by combining the post-narcotic POSS assessment with the pain reassessment in the EHR. The result is increased documentation.

The project has transitioned into the sustainability phase and is now standard of care. The utilization rate of naloxone continues to decline, and the rate of opioid-related adverse drug events decreased from 0.24 (adverse events/doses administered x 1,000) in the first quarter of 2013 to 0.06 in the first quarter of 2018. Frontline nurses are empowered to advocate for their patients' needs and protect them from harm, resulting in closer monitoring for opioids' sedative effects and a safer pain management process. In addition, this evidence-based practice project was cited as an exemplar during the hospital's 2016 Magnet® survey.

The hospital continues to track and disclose opioid-related adverse drug events through the opioid task force. In addition, the project has been selected as part of a collaboration among all of the hospital sys-



EHRs and opioid monitoring

Building standardized opioid monitoring and documentation into an organization's electronic health record (EHR) can reduce adverse drug events and increase patient safety. Consider these strategies for your organization's EHR.

- Include opioid dosing alerts for providers in order entry.
- Develop a naloxone utilization report for monitoring administration on each nursing unit.
- Develop opioid administration guidelines for nurses, providers, and pharmacists.
- Implement a sedation level assessment tool, such as the Pasero Opioid-induced Sedation Scale.

tem's sites in an effort to reduce opioid use. One hospital alone is estimated to save over $140,000 throughout the project's life cycle. Implementing this project allowed the hospital to align with The Joint Commission's requirements for enhancing pain assessment and management and keeping patients safe. ★

Edward Meyer is the director of quality and informatics at VNA of Albany in Albany, New York. When this article was written, Meyer worked for another healthcare organization.

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