

Patient Safety Tip of the Week

June 14, 2016

Nursing Monitoring of Patients on Opioids

Opioid-induced respiratory depression has long been one of our most frequently discussed patient safety issues (see the full list of our prior columns at the end of today's column). Shortly after The Joint Commission issued its Sentinel Event Alert "Safe Use of Opioids in Hospitals" in 2012 (see our September 2012 What's New in the Patient Safety World column "[Joint Commission Sentinel Event Alert on Opioids](#)"), CMS (Centers for Medicare and Medicaid Services) announced its intent to develop a quality measure related to monitoring hospitalized patients receiving opioids. CMS's intention was to develop a measure that could be collected via data submitted electronically from EMR's. And, while patients receiving opioids via any route are at risk for respiratory depression, it was felt that the most accurate measures could be determined on those patients receiving opioids via PCA (patient-controlled analgesia).

Eight US hospitals volunteered to participate in pilot data collection for CMS. A report of the results of that pilot data were recently published and **should be a wake-up call** for all hospitals ([Jungquist 2016](#)).

The data came from nurse-abstracted electronic medical records and focused on the monitoring of 3 key indicators and 2 key timeframes:

- Oxygen saturation via pulse oximetry
- Respiratory rate
- Sedation score

The two timeframes looked at were every 4.5 hours and every 2.5 hours. Actually, the two intended timeframes were 2 and 4 hours but it was felt that it might take up to 30 additional minutes for entry of the indicators into the EMR so the extra 0.5 hours was added to each timeframe.

Strikingly, **only 8.4% of the patients had full monitoring of all 3 parameters** as per the specifications of the measure. Even at the 4.5 hour timeframe only 26.8% had all 3 assessments.

A very important finding was that naloxone administration, used to rescue patients with respiratory depression, was not needed in any patient who was assessed at least every 2.5 hours (1.3% of all patients on PCA received naloxone).

Note that the hospitals in this pilot project had different local policies regarding monitoring patients on PCA so it should not be surprising that the overall compliance rates varied by hospital. Those hospitals that allowed PCA only in higher levels of care had higher compliance rates.

We've, of course, discussed appropriate monitoring of patients receiving opioids on many occasions and strongly recommend use of capnography and/or apnea monitoring. Pulse oximetry by itself, whether episodic ("spot check") or continuous, can be misleading, especially in patients receiving supplemental oxygen. Similarly, monitoring respiratory rate visually is misleading unless you are sure to watch the respiratory rate while the patient is asleep. There was extreme variability of the respiratory rate measurements in the study, perhaps reflecting different rates when the patient was awake or asleep (note that most EMR's don't currently capture the state of awakeness when the respiratory rate is measured). The authors of the current study allude to the fact that certified nursing assistants often do the respiratory rate measurement so must be educated on how to appropriately assess the respiratory rate.

Use of a numeric sedation scale, like the Pasero Opioid-induced Sedation Scale (POSS) or the RASS (Richmond Agitation Sedation Scale), is most helpful in patients receiving episodic rather than continuous opioids (see our May 6, 2014 Patient Safety Tip of the Week "[Monitoring for Opioid-induced Sedation and Respiratory Depression](#)"). Before the next dose of an opioid is given a nurse would assess the patient's level of sedation and determine whether the next dose should be given as ordered, or withheld, or adjusted. It is somewhat less useful when patients are using PCA but still should be done since a nurse might recommend cessation of PCA if a patient is too sedated while using PCA. If the sedation scale parameter were removed from the proposed CMS quality measure, the overall compliance rates would increase to 33.4 % at 2.5 hours and 53.9% at 4.5 hours.

The authors of the current study also note that monitoring trended data rather than just looking at threshold rates may be important. We concur but with the caveat that, particularly in patients with obstructive sleep apnea, changes may occur precipitously without an antecedent worrisome trend.

The Jungquist paper has good references to the evidence-based guidelines for monitoring patients receiving opioids as do our many columns listed below.

Perhaps the best advice made by Jungquist and colleagues is that "electronic monitoring should complement and not replace vigilance in nursing assessments and monitoring practices". We concur wholeheartedly.

CMS may need to rethink some of the technical and practical issues involved in data collection for this much-needed quality measure. But every hospital needs to take a good look at its own current practices for monitoring patients receiving opioids regardless of whether CMS or other regulatory body is collecting data on such. You will likely find you have some work to do to get your organization up to snuff on best practices for monitoring your patients who are on opioids.

Our other Patient Safety Tips of the Week pertaining to opioid-induced respiratory depression and PCA safety:

- January 4, 2011 “[Safer Use of PCA](#)”
- July 13, 2010 “[Postoperative Opioid-Induced Respiratory Depression](#)”
- May 12, 2009 “[Errors With PCA Pumps](#)”
- September 21, 2010 “[Dilaudid Dangers](#)”
- November 2010 “[More on Preoperative Screening for Obstructive Sleep Apnea](#)”
- February 22, 2011 “[Rethinking Alarms](#)”
- May 17, 2011 “[Opioid-Induced Respiratory Depression – Again!](#)”
- September 6, 2011 “[More Tips on PCA Safety](#)”
- December 6, 2011 “[Why You Need to Beware of Oxygen Therapy](#)”
- February 21, 2012 “[Improving PCA Safety with Capnography](#)”
- September 2012 “[Joint Commission Sentinel Event Alert on Opioids](#)”
- September 2012 “[FDA Warning on Codeine Use in Children Following Tonsillectomy](#)”
- July 3, 2012 “[Recycling an Old Column: Dilaudid Dangers](#)”
- February 12, 2013 “[CDPH: Lessons Learned from PCA Incident](#)”
- February 19, 2013 “[Practical Postoperative Pain Management](#)”
- May 6, 2014 “[Monitoring for Opioid-induced Sedation and Respiratory Depression](#)”
- March 3, 2015 “[Factors Related to Postoperative Respiratory Depression](#)”
- June 2, 2015 “[Reminders of Dilaudid Dangers](#)”
- August 11, 2015 “[New Oxygen Guidelines: Thoracic Society of Australia and NZ](#)”
- August 18, 2015 “[Missing Obstructive Sleep Apnea](#)”
- December 2015 “[Opioid Alert Fatigue](#)”
- March 2016 “[Guideline for Management of Postoperative Pain](#)”

- Tools: [PCA Pump Audit Tool](#) and the [PCA Pump Criteria](#)

References:

Jungquist CR, Correll DJ, Fleisher LA, et al. Avoiding Adverse Events Secondary to Opioid-Induced Respiratory Depression: Implications for Nurse Executives and Patient Safety. J Nurs Admin 2016; 46(2): 87-94
http://journals.lww.com/jonajournal/Abstract/2016/02000/Avoiding_Adverse_Events_Secondary_to.8.aspx



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