

Just sleeping, or opioid-induced sedation: A review of unintended advancing sedation and respiratory depression after the administration of opioids in the emergency department

By Charlene Drebert, RN, BScN

“**P**atient sleeping, *resps easy on room air*”. How many times have we charted something similar? For patients experiencing severe pain in the emergency department, it can be quite a process for both nurse and patient to achieve adequate pain control. Once a patient appears comfortable and settled to sleep, we may hesitate to wake them to check their level of sedation. Unfortunately, silently observing the patient and counting their respiratory rate does not necessarily provide an accurate assessment of their respiratory status. A full assessment includes the rate, depth, and effectiveness of respirations, as well as the patient’s level of drowsiness, how easily he rouses, and his ability to stay awake after being roused. Other methods, such as continuous SpO₂ and ETCO₂ monitoring, can provide additional information for trends, such as the patient’s oxygen and ventilation status when not being stimulated. Even the act of waking a patient to spot-check his SpO₂ can mask his true oxygen levels during sleep, since the stimulation of applying the finger probe can be enough to increase the depth or rate of respirations.

The purpose of this article is to help prevent the adverse effects of opioid analgesic administration, namely opioid-induced sedation and respiratory depression in the emergency department. Despite the frequency of administering opioid analgesics in the ER, there are no universally accepted guidelines for monitoring practising for these patients. Literature suggests each unit develops their own policies and protocols regarding the administration of opioids. This article will explore the important role nurses have in monitoring patients, such as distinguishing between sleep versus excessive sedation. It will also examine a number of variables that affect a patient’s risk for sedation and respiratory depression. These include opioid tolerance and naivety, polypharmacy, the patient’s individual risks (such as overall health status, physical characteristics and co-morbidities), and iatrogenic risks. It will also discuss methods for patient monitoring, such as thorough respiratory assessments, SpO₂/ETCO₂ monitors, sedation scales, and clinical documentation tools.

Nurses are the ideal choice for monitoring patients for excessive sedation related to opioids. Coupled with 24-hour proximity to patients and clinical assessment skills, vigilant nursing staff can be leaders in preventing adverse outcomes. For example, prior to administering doses of narcotics, nurses can screen patients for factors that increase the risk for opioid-induced sedation.

Recognizing excessive sedation early is crucial for best patient outcomes. Nurses must be able to judge when to withhold additional doses of narcotics, assess the difference between sleep versus sedation, and know how to respond to medical emergencies regarding excessive sedation and respiratory depression.

Opioids are one of the most common drugs implicated in adverse reactions. According to the Sentinel Event Alert, 29 per cent of these opioid-related adverse events (including deaths) were related to improper patient monitoring. In order to avoid accidental overdose of narcotics, nurses should screen patients for both opioid tolerance and naivety. Patients new to narcotics (or who are being restarted on narcotics) require extra precautions, such as starting at the lowest effective dose and carefully titrating in order to achieve adequate pain control. In opioid-tolerant patients, it is important to avoid the practice of rapid narcotic dose escalation. In addition, chronic pain patients may already have narcotics on board, such as sustained-release morphine or fentanyl patches.

Knowledge of polypharmacy (the use of multiple medications) is vital to better predicting the effect of narcotics on individual patients. For example, patients should also be screened for any substances that may contribute to opioid-induced sedation. These include common CNS depressants, such as alcohol, benzodiazepines, barbiturates, and hypnotics. Even over-the-counter substances such as antihistamines and antiemetics may contribute to a patient’s level of sedation. Polypharmacy may also occur between different types of narcotics, such as oral, subcutaneous, intramuscular, and intravenous morphine. In cases like this, it is important to know the onset and peak times of various drugs. For example, an immediate-release oral opioid has a peak time of 60 to 90 minutes, while an IV dose of morphine has a peak time of 15 to 30 minutes. Imagine a scenario where a patient is initially given an oral narcotic, but after half an hour is changed to IV narcotics to treat escalating acute pain. Knowledge of drug onset and peak times will help the nurse to be aware of how the oral dose has not yet reached its time of peak drug concentration, and to take this into consideration before administering additional doses of IV narcotics.

There are many individual characteristics that predispose patients to an increased risk of oversedation and respiratory depression. Literature emphasizes the need to screen patients

for these risk factors, many of which are related to a patient's general health status and are patient-specific. These include: a diagnosis of sleep apnea or sleep-disorder breathing, snoring, smoking, end-organ damage affecting the metabolism and elimination of narcotics, extremes of age, surgical incisions that could impair effective breathing, morbid obesity, the presence of disease states (such as underlying cardiac and respiratory conditions), large neck size, and type of response to narcotics in the past (e.g., opioid naïve or tolerant).

Some risk factors contributing to oversedation are iatrogenic, and may involve finances, staffing, education, environmental variables, and hospital workplace circumstances, and unit culture. For example, departmental budgets may limit the availability of technology-supported monitoring, such as equipment for continuous capnography and pulse oximetry. The most concerning of the iatrogenic factors involve the administration of narcotics and variables in nursing practice. This includes monitoring practices, communication, nurse-patient ratios, high patient turnover, experience with equipment, unclear policies, and lack of education. Nurses can also develop alarm fatigue, in which they become desensitized to the sounds of alarms and do not always respond to alerts from respiratory, SpO₂, or ETCO₂ monitors. Unit culture may also support the idea of "just let the patient sleep" instead of rousing the patient to assess neurological status or sedation. This last factor tends to occur more frequently on night shifts.

Assessing a patient's sedation and respiratory status is critical to preventing opioid overdose. The first 24 hours of opioid therapy are the most dangerous time in terms of opioid-related sedation and respiratory depression. Parameters to monitor include respiratory rate and pattern, oxygen saturation, and level of sedation. A respiratory assessment includes listening to the sound of breathing. Sounds such as snoring indicate airway obstruction, and can be an ominous sign in a sedated patient. Note the rate, regularity, and depth of respirations. The nurse should observe the trends in respirations, and any shallow breathing or episodes of apnea. When capnography is unavailable, observing the depth of respirations is the easiest method to assess carbon dioxide clearance. For example, a patient who is breathing shallow, fast, or slow may have inadequate ventilation. Pulse oximetry measures oxygenation. While an extremely useful tool, oxygen saturation does not measure ventilation. Monitoring for elevated end-tidal CO₂ via capnography is a more sensitive indicator of respiratory depression, and can detect respiratory compromise before decreased chest wall movement or oxygen desaturation are observed. Next, assess the patient's level of sedation. Sometimes referred to as the sixth vital sign, sedation scores are a vital part of providing safe opioid therapy. While sedation is an extremely sensitive indicator of impending respiratory depression, not all nurses feel strongly about assessing sedation before administering opioids. One study surveyed 602 nurses, and found that only 66 per cent felt that assessing the level of sedation was an important consideration prior to giving narcotics.


Some nurses hesitate to assess sedation levels because patients are sleeping. Sometimes patients are sleep deprived from pain or are exhausted from suffering through illness. As such,

nurses may feel strongly about letting patients rest, and may let them sleep through the night or even until mid morning without waking them. If the patient has been receiving stable doses of narcotics and has a normal respiratory assessment, it is usually acceptable to let him sleep. If there is any doubt as to whether the patient is actually "sleeping" (or is potentially oversedated from medications) never hesitate to wake the patient. Just remember to check the patient's respiratory status before attempting to rouse him. Any stimulation (even putting a pulse oximetry on his finger) may change the depth, rate, or regularity of respirations, and may prevent an accurate assessment. In addition, ask the patient a question. Does he stay alert, or does he become drowsy when he tries to talk? Is his speech slurred? Does he fall asleep mid-sentence? If so, this is a sign of oversedation.

On a reassuring note, a patient who has well-controlled pain and who is sleeping normally will typically fall asleep again after they are woken for the sedation assessment. A patient who has difficulty falling back to sleep may be having poor pain control. If so, they require additional evaluation of their pain level and need for analgesia. In addition, a sedated patient may still experience pain, and should be assessed for any discomfort.

There are no clear guidelines for using sedation scales in the emergency department. The Richmond-Agitation Sedation Scale (RASS) is mainly utilized in intensive care units, and focuses on goal-directed sedation for agitation and delirium rather than opioid overdoses. The Inova Sedation Scale (ISS) and Pasero Opioid-Induced Sedation Scale (POSS) have both been used for assessing sedation in noncritical care settings, and focus on sedation in regards to pain management. The POSS scale has been rated as the most user-friendly by nurses. It is simple, easy to understand, and offers useful decision-making information. However, any patient who is somnolent or non-responsive to stimuli must be treated as an emergent situation. Hold all sedating drugs, and contact the physician.

While these tools provide guidance on how to score the level of sedation, they do not specify when to assess patients or how to document the findings. For example, how often should a patient be assessed? Where and how is this charted? The answers to these are specific to each unit and departmental policies. The emergency department at Princess Alexandra Hospital in Australia has a morphine administration protocol in which vital signs, sedation score, and pain score must be documented at 10-minute, 30-minute, and 60-minute intervals after the last dose of morphine. Following this, documentation returns to the nurse's normal patient observations. Charting this longhand in the nursing progress notes can be cumbersome and time consuming, especially if the patient is receiving frequent assessments. As such, some institutions have acute observation charts. Princess Alexandra Hospital uses a similar chart for patients on frequent doses of regular and prn opioids (intramuscular, subcutaneous, and oral). In addition to simplifying charting, these types of clinical documentation tools help to highlight trends and promote clearer communication between health care providers. It also provides a standardized method of assessment and documentation.

In summary, it is important to educate staff about opioid-induced sedation, and to screen patients prior to administering narcotics. Monitoring should include respiratory status, as well as sedation, and frequency of monitoring should be according to patient condition, unit policy, and nursing judgment. Despite any technology-supported monitoring devices, there is no replacement for strong clinical assessment skills. Are you sure the patient is just sleeping? Don't just guess, convince yourself, and wake up the patient. Patient safety starts with you. 

About the author



Charlene Drebert, RN, BScN, graduated with her BScN from the University of Victoria, and completed her Critical Care Nursing Specialty certificate at British Columbia Institute of Technology. Her clinical experience includes CVU, PARR, ER, ICU, and camp nursing. She currently works in the emergency department of Victoria General Hospital, and is studying for her Master's of Nursing through Athabasca University.

REFERENCES

- Hunter, J., & Rawlings-Anderson, K. (2008). Respiratory assessment. *Nursing Standard*, 24(41), 41–43.
- 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.
- Joint Commission. (2012). Safe use of opioids in hospitals. *Sentinel Event Alert*, 49, 1–5.
- McCaffery, M., Hagle, M., & Kim, J. (2007). *Opioid-induced sedation*. Retrieved from <http://www.hpccconnection.ca/tools/documents/paintools/OpioidSedationScale.pdf>
- Nisbet, A.T., & Mooney-Cotter, F. (2009). Comparison of selected sedation scales for reporting opioid-induced sedation assessment. *Pain Management Nursing*, 10(3), 154–164.
- Pasero, C. (2009). Assessment of sedation during opioid administration for pain management. *Journal of Perianesthesia Nursing*, 24(3), 186–190.
- Pasero, C. (2010). Safe IV opioid titration in patients with severe acute pain. *Journal of Perianesthesia Nursing*, 25(5), 314–318.
- Princess Alexandra Emergency Department. (2010). *Nurse initiated analgesia (NIA) and nurse initiated medication (NIM) education package*. Retrieved from <http://www.ed-nurse.com/wp-content/uploads/2012/02/PAH-ED-NIA-Education-Package-V2.pdf>
- Princess Alexandra Hospital. (2009). *Acute observation chart*. Retrieved from http://server.vettweb.net.au/qho/pah/redev/pca/media/ACUTE_OBSERVATION_CHART_2006.pdf
- Princess Alexandra Hospital Acute Pain Service. (2009). *Assessing opioid related side effects*. Retrieved from http://server.vettweb.net.au/qho/pah/redev/pca/page_39.htm
- Sessler, C.N., Gosnell, M.S., Grap, M.J., Brophy, G.M., O'Neal, P.V., Keane, K.A., ... Elswick, R.K. (2002). The Richmond Agitation-Sedation Scale. *American Journal of Respiratory and Critical Care Medicine*, 166, 1338–1344.

NENA AT WORK

How attending the NENA conference changed patient flow in our ED: Implementation of a Rapid Assessment Zone

By Marie Grandmont, RN, BN, ENC(C)

Call it serendipity... Who knew that an encounter on that cool drizzling morning running on the sea wall in Vancouver would change the pathway for patients in our emergency department in Winnipeg? I was in Vancouver attending the NENA conference in May 2013. Part of the organized events for the conference was morning yoga or a walk or run along the sea wall. I chose the run and met Sherri Morrish. This was the moment that began the wave of change for patients coming to Concordia Hospital Emergency Department (ED).

Sherri and I began running together and talking about where we were from and

where we worked. We had many similarities in our lives, but the discussion of what both brought us to Vancouver did not come out till the end of the run. When I discovered she was speaking at the conference about streaming, I knew our conversation that started on the sea wall had only just begun.

Prior to coming to Vancouver, I had read the article Sherri published in the spring 2013 edition of the *Canadian Journal of Emergency Nursing (CJEN)*, Streaming in the emergency department: An innovative care delivery model. I knew she was speaking at the conference and I signed up for the breakout session on

streaming, which I will now refer to as a Rapid Assessment Zone (RAZ). The Concordia Emergency Department leadership team had some brief discussion on Rapid Assessment Zones prior to my attendance at the conference. Our Director of Patient Services and Physician Director for the emergency department had both attended a conference in Toronto in the fall of 2012 where they had an opportunity to tour two EDs that had effectively implemented a Rapid Assessment Zone. A Minor Treatment Area, staffed by a nurse and nurse practitioner, already existed and worked effectively within Concordia Emergency to see CTAS level 4 and 5 patients. We were