

Monitoring Requirements for Patients Receiving Opioids

Version: 2

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1.0 Introduction

The purpose of this document is to inform health care providers of the monitoring and assessment requirements for patients receiving opioid medications via continuous intravenous infusion, via Patient/Nurse-Controlled Analgesia (PCA/NCA) therapy, or via intermittent intravenous bolus.

- For the purposes of this document, the term “opioid” refers to morphine, hydromorphone and fentanyl
- Parenteral opioids are considered potentially highly toxic drugs
- Individual consideration regarding monitoring may be necessary and appropriate in cases such as palliative care, or patients with chronic use of opioids who wish to ambulate. Less stringent monitoring may be indicated in these situations. The RN is advised to assess the patient and consult with the Acute Pain Service (APS) or Responsible Provider when modifications to patient monitoring are being considered. A medical order should be obtained for any monitoring modifications.
- Values listed in the included tables are the **minimum** Sedation Score, Respiratory Rate and Oxygen Saturation values that require notification of APS/Responsible team.
 - Clinical judgment and an awareness of a patient’s baseline status must be utilized when assessing patients receiving opioids. Monitoring of the overall trend in vital signs, respiratory status, and sedation score is critical in assessment of opioid adverse effects.
 - **Patient condition may warrant notifying APS/Responsible team even if Sedation Score is lower, or Respiratory Rate or Oxygen Saturations are higher than the values listed.**
- Sedation is the most important predictor of respiratory depression. Oxygen saturations may be minimally predictive of respiratory depression in patients receiving oxygen.
- Patient populations at increased risk of respiratory depression, airway obstruction, and/or sedation from opioids include:
 - Neonates: For infants < 3 months (corrected age) receiving IV opioids, continuous ECG with respiratory rate/apnea monitoring is required
 - Cerebral palsy
 - Neuromuscular disease
 - Cognitive impairment
 - Obstructive sleep apnea and sleep disordered breathing
 - Poly pharmacy, especially co-administration of sedatives
 - Opioid-naïve patients
 - Patients on supplemental oxygen
 - Patients receiving neuraxial opioids

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- Document all assessment of vital signs, sedation scores, respiratory status, oxygen therapy (if applicable), and pain in the electronic health.

2.0 Policy

2.1 PCA/NCA Monitoring Requirements

With initiation of PCA/NCA, change of dose/rate/medication, or on admission/transfer to a nursing unit:

- Heart rate (HR), Blood pressure (BP), Respiratory rate (RR) and quality of respirations, Sedation Scale, and pain assessment q1h x4h

Ongoing monitoring

- Oxygen saturation continuously
- For infants < 3 months (corrected), add continuous ECG with respiratory rate/apnea monitoring
- RR, quality of respirations, Sedation score q1h
- HR, BP q4h
- Pain assessment q4h, or more often until pain relief goal is met
- Monitor trend in vital signs and sedation score to detect changes in clinical status over time

PCA/NCA Monitoring Requirements			
Notify APS:			
Age group	If Respiratory Rate less than: *	Or, If room air Oxygen Saturation less than: **	Or, Other criteria
<3 mo	20	90%	Sedation score = 2 Disoriented Inadequate analgesia
3 – 12 mo	20		
1 – 5y	16		
5-12y	15		
12y+	11		

Notify APS and Responsible team STAT, and TURN OFF infusion pump:			
Age group	If Respiratory Rate less than: *	Or, If room air Oxygen Saturation less than: **	Or, Other criteria
<3 mo	16	88%	Hypoventilation, Sedation score 3 or Cyanosis
3 – 12 mo	16		
1 – 5y	13		
5-12y	11		
12y+	10		
Startle patient and ask patient to breathe. Administer O2 at 100%. Assist ventilation with AMBU bag as needed. Have naloxone available.			

* unless otherwise ordered, based on patient-specific criteria.

+ Oxygen therapy can mask desaturations that may otherwise occur when hypoventilating. For patients receiving oxygen therapy, very close attention to respiratory rate, respiratory effort, sedation score and level of consciousness is required. Notify Responsible Team if oxygen requirements increase.

2.2 Continuous Opioid Infusion Monitoring Requirements

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With initiation of infusion, change of dose/rate/medication, or on admission/transfer to a nursing unit:

- Heart rate (HR), Blood pressure (BP), Respiratory rate (RR) and quality, Sedation Scale, and pain assessment q1h x4h

Ongoing monitoring

- Oxygen saturation continuously
- For infants < 3 months (corrected age), add continuous ECG with respiratory rate/apnea monitoring
- RR and quality of respirations, Sedation score q1h
- HR, BP q4h
- Pain assessment q4h, or more often until pain relief goal is met
- Monitor trend in vital signs and sedation score to detect changes in clinical status over time

Continuous Opioid Infusion Monitoring Requirements			
Notify provider:			
Age group	If Respiratory Rate less than: *	Or, If room air Oxygen Saturation less than: **	Or, Other criteria
<3 mo	20	90%	Sedation score = 2 Disoriented Inadequate analgesia
3 – 12 mo	20		
1 – 5y	16		
5-12y	15		
12y+	11		

* unless otherwise ordered, based on patient-specific criteria + Oxygen therapy can mask

Notify Responsible team STAT, and TURN OFF infusion pump:			
Age group	If Respiratory Rate less than: *	Or, If room air Oxygen Saturation less than: **	Or, Other criteria
<3 mo	16	88%	Hypoventilation, Sedation score 3 <i>or</i> Cyanosis
3 – 12 mo	16		
1 – 5y	13		
5-12y	11		
12y+	10		
Startle patient and ask patient to breathe. Administer O2 at 100%. Assist ventilation with AMBU bag as needed. Have naloxone available.			

k desaturations that may otherwise occur when hypoventilating. For patients receiving oxygen therapy, very close attention to respiratory rate, respiratory effort, sedation score and level of consciousness is required. Notify Responsible Team if oxygen requirements increase.

2.3 IV Opioid Single Dose Monitoring Requirements

This policy applies to patients receiving single dose IV opioids (boluses) whether it is in addition to or without a continuous IV opioid infusion.

Note: Administration of other CNS-depressing medications and changes in clinical status (including fluid balance) can influence response to opioids. Subsequent opioid boluses, especially when given concurrently with an opioid infusion, can have a cumulative effect.

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- Responding to a single dose of an opioid without adverse effects is never a guarantee that a patient will continue to respond in that way. Be aware of changes in clinical status that influence opioid response prior to any reduction in patient monitoring.

Intermittent monitoring

- All patients must have documented baseline vital signs (Sedation score, RR, respiratory quality, HR, BP, oxygen saturation) prior to receiving any IV opioid bolus.
- Begin vital signs when the dose is completely delivered.
- Monitoring for opioids administered by IV Push or IV Additive (Diluted and infused over 5+ minutes) is identical. Note that the peak effect (at ~10-20 minutes) is delayed for IV Additive.
- Monitor trend in sedation score and vital signs to detect changes in clinical status over time.

	Sedation score, RR and quality, HR, oxygen saturation*	Pain assessment
After <i>INITIAL</i>* opioid boluses	At 5, 10, 15, and 30 minutes post-bolus. Add BP at 5 and 15 minutes post-bolus	Before bolus and within 1h of bolus administration
After subsequent opioid boluses	At 5, 15, and 30 minutes post-bolus. No BP required.	Before bolus and within 1h of bolus administration

For infants < 3 months (corrected age), add continuous ECG with respiratory rate/apnea monitoring until 4 hours after bolus dose administration.

* Sedation is the most important predictor of respiratory depression. Oxygen saturations may be minimally predictive of respiratory depression in patients receiving oxygen. For patients receiving oxygen therapy, very close attention to respiratory rate and effort, sedation score and level of consciousness is required.

*Initial dose is the first dose in any patient encounter. If the opioid dose increases or the type of opioid changes, "Initial Bolus" monitoring requirements apply.

3.0 Related Documents

[Care of Patients Receiving Continuous Infusion of Opioids](#)

[Care of Patients Receiving Patient Controlled Analgesia PCA and Nurse Controlled Analgesia NCA](#)

[Pain Management](#)

[Administration of medication](#)

[Electronic Patient Monitoring](#)

[Vital Signs Monitoring](#)

4.0 References

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