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Pain Medicine: Analgesic Medications, 10770

Policy/Procedure

PURPOSE:

To maintain safety and quality in an evidence-based, patient-focused approach to pain prevention and treatment using analgesic medications.

POLICY:

We partner with children and families to **prevent** and **relieve** pain to the degree possible. The following guidelines describe a pharmacological approach with analgesic medications.

PROCEDURE:

I. **Analgesic Medications:**

A. This information provides guiding principles for consistent approaches of pain medicine administration to maximize the safe and efficient use of analgesics.

1. This does not preclude individual exceptions or the addition of new techniques, drugs, or other modifications of these guidelines as advances are available.
2. Doses higher than the recommended maximums are allowable providing that their titration to clinical effect and safety is clearly documented in the medical record.
3. Refer to Seattle Children's Formulary for evidence based dosing information.

B. Determine Optimal Analgesic(s) For Treatment:

1. Whenever possible, utilize data on specific safety and efficacy indications.
2. **A fundamental principle is to individualize the analgesic regimen in the context of the specific patient.** Consider the etiology, nature, and intensity of the child's pain, as well as previous history with management strategies.
3. Anticipate pain and plan for timely analgesic intervention before pain escalates. This pre-emptive and preventive approach results in overall less analgesic consumption and concerning side effects, as well as improved pain management.
4. Respond to pain with appropriate intervention, matching the cause and intensity of the child's pain rather than a required progression through steps of weak to stronger analgesics.

a. Some types of pain respond to non-opioid drugs alone.

b. Pain of somewhat greater severity may be relieved by combining a low-dose opioid preparation with the non-opioid.

c. More severe pain requires the addition of a higher-dose opioid preparation to the non-opioid.

d. At any of these levels, analgesic adjuvants may be helpful *(*American Pain Society: Principles of Analgesic Use in the Treatment of Acute & Cancer Pain).

5. Peripherally acting agents (e.g. acetaminophen, ibuprofen, other nonsteroidal anti-inflammatory drugs) may be useful adjuvants for acute and chronic pain (e.g. from surgery, trauma, arthritis, and cancer).

6. Additional adjuvants for pain may be ordered in conjunction with opiates including:

a. Muscle spasms:

i. Muscle relaxants.

b. Neuropathic pain:

i. Tricyclic antidepressants.

ii. Anticonvulsants.

c. Anxiety, agitation:

i. Anxiolytics.

ii. Sedatives.

C. Define the Route, Dose, and Schedule of Administration:

1. Route:

a. Consider oral agents as the first option.

i. When oral opioids are indicated, prescribe short acting preparations initially to establish requirement dosing and intervals for the individual patient. Only after the patient has established a consistent (around the clock) need for opioids should long-acting oral opioids be considered.

b. There is virtually no indication for IM injection of analgesics. Substantial disadvantages of this route of administration include:

i. Unnecessary painful administration

ii. Wide fluctuations in absorption from muscle

iii. Best available data on metabolism are based on oral administration

c. Continuous infusions provide greater safety and comfort than intermittent parenteral boluses.

i. Depending on the expected time of peak effect for individual opioids, full analgesia with a continuous infusion may not be reached for up to 6 hours.

ii. Consider giving a loading dose at the initiation of therapy.

2. Dose:

a. Dosage Guidelines:

i. Refer to Seattle Children's Formulary of Medications.

b. To maximize pain relief and minimize side effects, begin with the recommended evidence-based starting dose, reassess in a timely fashion based on the action of the medication, then titrate dose and/or interval as needed.

c. Titration is a key principle to ongoing effective and safe management.

d. Doses higher than the recommended maximums are allowable (e.g. in the setting of tolerance), providing that titration to clinical effect and safety is clearly documented in the medical record.

3. Schedule:

a. Round-the-clock medications are recommended for patients with ongoing or predictable pain.

b. PRN (as needed) medications may be appropriate for those with intermittent pain or for breakthrough pain.

D. Writing Opioid Orders:

1. Dosage guidelines:

a. For patient controlled analgesia (PCA), epidural, and general opioid administration, see individual Clinical Information System (CIS) order sets/powerplans/sentences and Seattle Children's Formulary of Medications.

2. For procedures, see Clinical sections of this and other P&Ps:

a. Pain Medicine: Patient Controlled Analgesia (PCA)

b. Regional Analgesia: Epidural Catheter

c. Medication Drips: Continuous Infusion

3. **Clinical P&P,** Ketamine Continuous Infusion for Analgesia in Acute Care.

4. Licensed independent practitioners write specific, narrow dosing parameters instead of a dosing range (e.g., x mg for severe pain) using the standard order sentence language in CIS.

a. This approach minimizes the potential for errors in judgment, adverse effects, and under dosing.

b. The standard PRN indications of mild, moderate, and severe are intended to guide appropriate selection of analgesic within the individual patient context (see section "F" in clinical considerations of this policy).

5. If the need for ongoing opioid use with moderate to high doses and parenteral agents is anticipated, give strong consideration to the use of a continuous infusion.

6. **For patients with chronic opioid needs, those who have developed tolerance and/or physical dependence, or those with any unusual needs or circumstances, consultation with the Pain Medicine Program is highly recommended**.

E. Pharmacologic Principles:

1. Titration:

a. Administer bolus doses of intravenous analgesics in small repeated doses titrated to clinical effect.

b. Wait until the drug has achieved maximal effect prior to repeating a dose.

c. If a sedative (e.g. benzodiazepines or pentobarbital) is given with an opioid consider reducing the dose of both the sedative and the opioid by 50%.

d. Address the most important component of the situation (pain, anxiety, or muscle spasms) with supplemental dosing (after the drug has achieved therapeutic effect).

e. In obese individuals, consult a pharmacist to assist with drug dosing and refer to **Housewide GOC**, Pediatric Obesity Patient Care.

2. Tapering:

a. Due to concerns for withdrawal related to physical dependence, opioids should be gradually tapered whenever an opioid was administered on a regular schedule for **longer than** 5 days or whenever fentanyl has been used for **longer than** 3 days.

i. Decrease the dose no more than 10% - 20% per day.

ii. Evaluate for signs of withdrawal (abdominal cramps, insomnia, diaphoresis, anxiety, rhinorrhea, salivation, chills, N/V). Opioid/benzodiazepine withdrawal syndrome can be objectively measured with the Withdrawal Assessment Tool (WAT-1) in all areas outside the NICU. The Modified Finnegan Tool is used in the NICU and for patients with suspected pre-natal drug exposure using common clinical indicators.
(See **Appendix I,** Withdrawal Assessment Tool, WAT-1.)
(See **Appendix II,** Modified Finnegan Tool).

- Initiate WAT-1 assessment every 12 hours (at minimum) for all patients when the taper begins. Assessment should continue for at least 72 hours after discontinuing opioid and/or benzodiazepine tapering plan.
- Initiate the Modified Finnegan for infants if pre-natal drug exposure is known or suspected or when withdrawal symptoms are noticed.
- See **Appendix II,** Modified Finnegan Tool.

iii. If a child shows signs of withdrawal, consult taper plan and consider returning to the previous dosage and hold the taper at this dose for 24 hours. Reassess and then consider restarting the taper.

iv. When a patient is comfortable on the morphine equivalent of 10 mcg/kg/hr, acetaminophen or ibuprofen alone may provide sufficient analgesia.

b. When tapering from morphine or hydromorphone administered for **less than** 5 days or fentanyl that has been administered for **less than** 3 days:

i. Slow taper may not be necessary.

ii. Calculate the current mg/kg/24 hour requirement and then use comparative pharmacokinetics charts and/or pharmacist to assist in switching to oral analgesics.

- See Seattle Children's Formulary of Medications.

c. See also **ICU GOC,** Tapering from Opioids and Benzodiazepines.

3. Changing to a new opioid or a different route:

a. When changing to a new opioid or a different route (e.g. IV morphine to oxycodone), first use the equi-analgesic doses (Seattle Children's Formulary of Medications) to estimate the

new dose, interval and route of administration. Modify the estimate based on the clinical situation and specific drugs.

b. Use caution and collaborate with pharmacist and Pain Medicine consultation in opioid tolerant patients because of incomplete cross-tolerance between agents.

F. Clinical Considerations:

1. For analgesic orders with as needed (PRN) indications, specify mild pain, moderate pain, or severe pain.
2. Determination of pain 'level' (mild, moderate, severe) associated with analgesic orders is achieved via clinical assessment and decision-making by a licensed professional, which includes (but not limited to):

✓	Pain intensity score using validated, developmentally appropriate, standard scales (see **Clinical P&P**, Pain Medicine: Principles and Assessment)
✓	Patient's baseline pain score (e.g. in the context of chronic pain) and target pain levels as conjointly defined by the patient and provider;
✓	Functional assessment;
✓	Increasing pain despite use of other agents or non pharmacologic strategies;
✓	Context of patient's current clinical status, such as: ▪ Route of administration (e.g. NPO status or avoidance of suppositories in setting of neutropenia); ▪ Post-operative course; ▪ Invasiveness of procedure; ▪ Exacerbation of acute verses chronic pain; ▪ Disease related pain; ▪ Synergistic effects with current treatment or medications.

3. The major route for elimination of opioids is the liver. Recommended doses do not apply to patients with renal or hepatic insufficiency or other conditions affecting drug metabolism and kinetics.
4. Anticipate, recognize and treat side effects.
   a. Common side effects from opioid administration include pruritus, nausea/vomiting, constipation, and sedation.
   b. Initiate assessment using RASS (Richmond Agitation and Sedation Scale), or NPASS (Neonatal Pain Agitation and Sedation Scale) for infants <1 year, to facilitate early recognition of clinical deterioration in patients receiving IV opioids per order. See **APPENDIX III:** Richmond Agitation and Sedation Scale (RASS)
      a. For patients receiving a NPASS pain score, the NPASS sedation score should be used instead of RASS.
      b. The NPASS sedation score is performed with cares in order to assess patient response to those cares.
   c. Recommendations for treatment will be found on PCA, epidural, and opioid administration

CIS order sets and in the Children's Formulary of Medications.

5. Differentiate maladaptive addiction from expected physical dependency or tolerance to opioids.
    a. Addiction / Psychological Dependence:
        i. Pattern of compulsive drug use characterized by a continued craving for an opioid and the need to use the opioid for effects other than pain relief
    b. Physical Dependence:
        i. The body becomes accustomed to an opioid.
        ii. Abrupt discontinuation of an opioid results in withdrawal.
    c. Tolerance:
        i. Larger dose of opioid analgesics are required to maintain the original effect.
    d. Iatrogenic Pseudo-Addiction:
        i. Behavioral characteristics resembling psychological dependence and are caused when opioids are prescribed too low or spaced too far apart to relieve the pain.
        ii. Understandably, a person in pain is motivated to gain relief and may exhibit behavior that appears to be manipulative or coercive if adequate analgesia is not delivered.
6. Assessment is the cornerstone of therapy. All health care providers at SCH are accountable to evaluate pain and the effectiveness of interventions.
7. The comprehensive treatment of pain often involves interdisciplinary approaches that may include pharmacologic, interventional, psychological, physical, and complimentary and integrative methods.
8. Specific Patient Considerations:
    a. **Infants Under Six Months**
        i. **For infants <6 months requiring opioid analgesia who are not in the ICU, consultation with the Pain Medicine Program is highly recommended**.
        ii. There is significant variability in the metabolism and effect of opioid medications among infants less than 6 months.
        iii. Indications for opioid use in infants include:
            - Analgesia in critically ill and/or mechanically-ventilated patients.
            - Post-op patients (or any patient) with pain unlikely to be controlled by local anesthetics, non-pharmacologic methods, or non-opiate medications.
            - Infants undergoing painful procedures.
        iv. Apnea and respiratory depression appear to be dose related.
            - Consider reducing the initial dose and use intensive monitoring for infants up to 6 months of age.
                A. For non-ventilated infants, the suggested initial opioid dose is to be about ½ of the recommended dose for older children.
                B. Intensive monitoring includes: continuous CRM and pulse oximetry
    b. Adolescents or young adults with a history of opioid abuse admitted for medical, surgical,

or psychiatric treatment, or through the Emergency Department who may be at risk for withdrawal

i. See GOC: "ED or Inpatient management of opioid withdrawal for adolescents or young adults with a history of opioid abuse"

See also:

- Seattle Children's Formulary of Medications
- Clinical P&P, Medication Administration
- Clinical P&P, Medication Drips: Continuous Infusion
- Clinical P&P, Pain Medicine: Patient Controlled Analgesia (PCA)
- Clinical P&P, Regional Analgesia: Epidural Catheter
- Clinical P&P, Ketamine Continuous Infusion for Analgesia in Acute Care
- ICU GOC, Tapering from Opioids and Benzodiazepines

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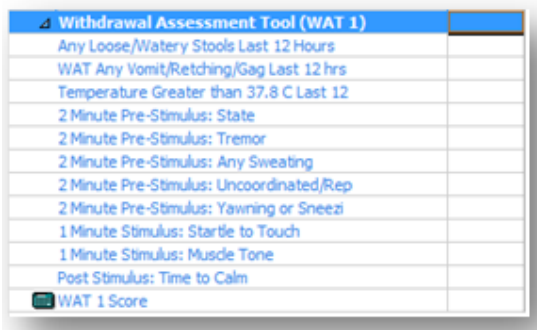
APPENDIX I: Withdrawal Assessment Tool, WAT-1

'Special Procedures' band in CIS IView:



Withdrawal Assessment Tool (WAT-1) Instructions

- Start WAT-1 scoring from the first day of weaning in patients who have received narcotics +/or benzodiazepines by infusion or regular dosing for prolonged periods (e.g., >5 days).
- The WAT-1 is completed and documented at least once per 12 hour shift (@ 0600 and 1800 ± 2 hours) until 72 hours after the last dose. More frequent assessment may be necessary in patients who show symptoms of withdrawal.
- If symptoms of withdrawal develop (most likely a score greater than 3) contact the medical team for re-evaluation of weaning plan.

Scoring Method:

- Obtain information on 3 indicators from the nursing documentation in the **previous 12 hours.**
  - **Loose/watery stools:** Score 1 if any loose or watery stools were documented that are **NOT** consistent with the patient's age, medical condition or baseline stooling pattern; Score 0 if none were noted.
  - **Vomiting/wretching/gagging:** Score 1 if any vomiting or spontaneous wretching or gagging were documented that cannot be attributed to other causes or interventions. Score 0 if none were noted.
  - **Temperature > 37.8°C:** Score 1 if the temperature documented was greater than 37.8°C more frequently than not during the previous 12 hours and not believed to be associated with an infection; Score 0 if this was not the case.

2 minute pre-stimulus observation: 5 indicators assessed during a 2 minute observation of the patient at rest.

- **State behavior:** Score 1 if awake and distress observed during the 2 minutes prior to the stimulus; Score 0 if asleep or awake and calm/cooperative.
- **Tremor:** Score 1 if moderate to severe tremor observed during the 2 minutes prior to the stimulus; Score 0 if no tremor (or only minor, intermittent tremor).
- **Sweating:** Score 1 if any sweating during the 2 minutes prior to the stimulus; Score 0 if no sweating noted.
- **Uncoordinated/repetitive movements:** Score 1 if moderate to severe uncoordinated or repetitive movements such as head turning, leg or arm flailing or torso arching observed during the 2 minutes prior to the stimulus; Score 0 if no (or only mild) uncoordinated or repetitive movements.
- **Yawning or sneezing:** Score 1 if >1 yawn or sneeze observed during the 2 minutes prior to the stimulus; Score 0 if 0 to 1 yawn or sneeze.

1 minute stimulus observation: 2 indicators assessed during a progressive arousal stimulus. During normal cares, the nurse uses progressive arousal to elicit the patient's response. First, the nurse calls the patient's name in a calm voice. If the patient does not respond, the nurse calls the patient's name and gently touches the patient's arm or leg. If the patient still does not respond, the nurse would assess the patient during a planned noxious procedure, e.g., endotracheal suctioning or repositioning.

- **Startle to touch:** Score 1 if moderate to severe startle occurs when touched during the stimulus; Score 0 if none (or mild).
- **Muscle Tone:** Score 1 if tone increased during the stimulus; Score 0 if normal.

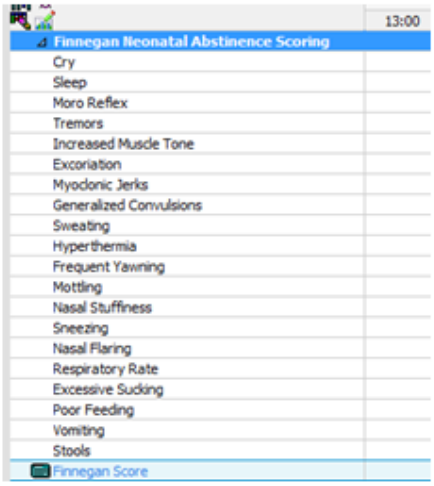
Post stimulus Recovery: 1 indicator assessed during an observation period following the stimulus.

- **Time to gain calm state:** Score 2 if it takes greater than 5 minutes following stimulus; Score 1 if achieved with 2 to 5 minutes; Score 0 if achieved in less than 2 minutes.

Sum the 11 numbers in the column for the total WAT-1 score (0-12).

APPENDIX II: Modified Finnegan Score

'Special Procedures' band and 'ICU Quick View' band in CIS IView. Reference text is available:



Reference Text is available in iView:

Finnegan Signs and Symptoms		Score
Cry	Excessive crying for < 5 min	2
	Continuous crying >5min	3
Sleep	Sleeps < 1 hour after feeding	3
	Sleeps < 2 hours after feeding	2
	Sleeps < 3 hours after feeding	1
Moro Reflex	Hyperactive Moro reflex	2
	Markedly hyperactive Moro reflex	3
Tremors	Mild tremors when disturbed	1
	Moderate-severe tremors when disturbed	2
	Mild tremors when NOT disturbed	3
	Mod-severe tremors when NOT disturbed	4
Increased Muscle Tone	Yes	1
	No	0
Excoriation (chin, elbows, toes, etc)	Yes	1
	No	0
Myoclonic Jerks	Yes	3
	No	0
Generalized Convulsions	Yes	5
	No	0
Sweating	Yes	1
	No	0
Hyperthermia	Hyperthermia 37.2-38.3	1
	Hyperthermia >/=38.4	2
Frequent Yawning(>3-4x/scoring interval)	Yes	1
	No	0
Mottling	Yes	1
	No	0
Nasal Stuffiness	Yes	1
	No	0
Sneezing (>3-4x/scoring interval)	Yes	1
	No	0
Nasal Flaring	Yes	2
	No	0
Respiratory Rate	Respiratory rate > 60/min	1
	Respiratory rate > 60/min w/retractions	2
Excessive Sucking	Yes	1
	No	0
Poor Feeding	Yes	1
	No	0
Vomiting	Regurgitation (>/=2x during/post feeds)	2
	Projectile vomiting	3
Stools	Loose stools	2
	Watery stools	3

Scoring:

I. Finnegan scores should be obtained on:

a. Infants born to drug-dependent mothers or mothers with a history of drug use
b. Infants with a positive drug screen or whose mother had a positive drug screen
c. Infants having withdrawal symptoms or who are being weaned from treatment with drugs that cause physiologic dependence
d. Infants for whom scoring is ordered by the provider

II. Scoring for Neonatal Abstinence Syndrome (NAS):
a. Score infants for 4 days after birth if pharmacologic intervention is not required.
b. Score infants for 5 days after drug therapy is discontinued for infants who require pharmacologic therapy.

III. Scores can be done every 3-4 hours with nursing care. Scores should be increased to every 2 hours if score is higher than 8.

IV. Pharmacologic treatment is generally indicated for 3 or more scores greater than 8 or a single score greater than 12.

APPENDIX III: Richmond Agitation Sedation Scale (RASS)

'Special Procedures' band for procedural sedation and CIS IView. Reference text is available:

Richmond Agitation Sedation Scale (RASS) *

Score	Term	Description	
+4	Combative	Overtly combative, violent, immediate danger to staff	
+3	Very agitated	Pulls or removes tube(s) or catheter(s); aggressive	
+2	Agitated	Frequent non-purposeful movement, fights ventilator	
+1	Restless	Anxious but movements not aggressive vigorous	
0	Alert and calm		
-1	Drowsy	Not fully alert, but has sustained awakening (eye-opening/eye contact) to *voice* (≥10 seconds)	Verbal Stimulation
-2	Light sedation	Briefly awakens with eye contact to *voice* (<10 seconds)	Verbal Stimulation
-3	Moderate sedation	Movement or eye opening to *voice* **(but no eye contact)**	Verbal Stimulation
-4	Deep sedation	No response to voice, but movement or eye opening to *physical* stimulation	Physical Stimulation
-5	Unarousable	No response to *voice or physical* stimulation	Physical Stimulation

Procedure for RASS Assessment

1. Observe patient
   a. Patient is alert, restless, or agitated. **(score 0 to +4)**
2. If not alert, state patient's name and *say* to open eyes and look at speaker.
   b. Patient awakens with sustained eye opening and eye contact. **(score –1)**
   c. Patient awakens with eye opening and eye contact, but not sustained. **(score –2)**
   d. Patient has any movement in response to voice but no eye contact. **(score –3)**
3. When no response to verbal stimulation, physically stimulate patient by shaking shoulder and/or rubbing sternum.
   e. Patient has any movement to physical stimulation. **(score –4)**
   f. Patient has no response to any stimulation. **(score –5)**

* Sessler CN, Gosnell M, Grap MJ, Brophy GT, O'Neal PV, Keane KA et al. The Richmond Agitation-Sedation Scale: validity and reliability in adult intensive care patients. Am J Respir Crit Care Med 2002; 166:1338-1344.

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Attachments:

Image 01
Image 02
Image 03
Image 04
Image 05

Approval Signatures

Step Description	Approver	Date
Release for Publication	& Procedures Policies: Policies & Procedures	10/22/2018
	Madlyn Murrey: Sr VP Chief Clinical Officer	10/22/2018
	Mark Del Beccaro: SVP-Chief Medical Officer	10/16/2018

Step Description	Approver	Date
	Pharmacy & Therapeutics Commit	10/16/2018
	Devon Bank: Supv, AP Providers, NP - PALS	10/16/2018

Applicability

Seattle Children's Hospital