

**Carolinas HealthCare System
Pediatric Policy & Clinical Practice Guidelines**

PAGE 1 OF 12

MANAGEMENT OF PAIN IN THE NEONATE

Written: 9/00
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I. POLICY

Neonatal patients shall be assessed and managed for pain and potential opioid withdrawal as indicated.

II. SUMMARY

To ensure the assessment and management of neonatal pain and potential opioid withdrawal.

III. NOTE

Pharmacologic management of pain requires MD/NNP order.

IV. PERFORMED BY

LPN, RN, NNP, MD

V. EQUIPMENT

- A. The *Neonatal Pain, Agitation and Sedation Scale (N-PASS)* tool will be utilized for neonatal pain and sedation assessment (see attached – pg 6 -7)
- B. The *Finnegan Neonatal Abstinence Scoring Tool (NAS)* will be utilized for assessment of potential opioid withdrawal (see attached – Appendix B)

VI. EDUCATION

- A. Written information regarding pain, pain management and sedation for their infant will be given to the parents with their admission packet and documented on the Education Teaching Record
- B. Pain and pain management will be discussed with the parents at the earliest opportunity
- C. Parents will be provided with written instructions and training on appropriate comfort measures for their infant which may be implemented during and after hospitalization
- D. In collaboration with the MD/NNP, parents will be offered the opportunity to remain with the infant during diagnostic/therapeutic procedures such as IV sticks, circumcision, and/or heel lancing.
- E. Should the parents remain with their infant during a procedure, they will be advised of their specific role before, during and after the procedure

VII. INTERVENTION

- A. Pain Assessment Considerations
Assessment for the existence of pain must take into account the infant's history, gestational age, current status and the infant's environment
 - 1. Indications for Assessment
 - a. Patients shall be assessed for pain with every "hands on" vital sign assessment, using the N-PASS tool
 - b. Patients shall be assessed for pain when there is a sudden change in patient behavior/status
 - c. Patients who are receiving analgesics and/or sedatives shall be assessed for response 30-60 minutes after an analgesic is given and then a minimum of once every 4 hours
 - d. Postoperative patients shall be assessed for pain a minimum of every 4 hours for the first three postoperative days, using the N-PASS tool.

- e. Postoperative patients, beyond the first three postoperative days, shall be assessed for pain with every "hands on" vital sign assessment, using the N-PASS tool
 - f. An assessment shall be performed within one hour after a pain medication is administered to assess the response to the medication
2. Considerations for Assessment of Pain in the Premature Infant
Additional points are added to the premature infant pain score based on the gestational age of the infant to compensate for their limited ability to behaviorally or physiologically communicate pain
- a. If the baby is <30 weeks corrected gestational age, a score of +1 is pre-assigned
3. Assessing Pain/Agitation
The nurse shall utilize the N-PASS pain/agitation assessment tool to determine the need for intervention
- a. A score of 0 to +2 is assigned for each behavioral and physiologic criteria listed on the tool
 - b. The total pain score is then documented as a positive number from 0 to 11
 - c. Treatment intervention is indicated for scores >3
 - d. Treatment intervention is required for known pain/painful stimuli before the score reaches >3
4. Assessing Pain in the paralyzed/ chemically paralyzed Infant
- a. Impossible to behaviorally evaluate a paralyzed infant for pain
 - b. Increases in HR and BP may be the only indicator for the need for more analgesia
 - c. Analgesics per MD/NNP order, should be administered continuously by drip or around the clock dosing
 - d. Opioids per MD/NNP order, should be increased by 10% every 3-5 days as tolerance occurs without symptoms of inadequate pain relief
5. Management
The goal of pain treatment/intervention is a score of ≤ 3 on the N-PASS scale
- a. Non Pharmacologic Measures
Non Pharmacologic interventions shall be instituted first and may include the following:
 - i. Positioning (nesting, swaddling, repositioning)
 - ii. Sound (soothing voice/music)
 - iii. Touch (rocking, stroking, holding)
 - iv. Pacifier for those babies with the ability to suck who are using a pacifier
 - v. Skin to skin contact for minor procedures such as heel lancing
 - ◆ When feasible, 10-15 minutes prior to procedure place baby dressed only in a diaper, prone and upright against mother's bare chest with several blankets over them to maintain thermoregulation
 - ◆ During procedure, have mother apply gentle firm pressure to infant's back to increase the skin contact
 - vi. Optimize Ventilation
 - ◆ Babies can become agitated by inadequate ventilation – correct by assessing need for suction and /or increased oxygen need
 - b. Pharmacologic Measures
 - i. Pharmacologic measures are implemented in collaboration with the MD/NNP and must have an accompanying order.
 - ii. Pharmacologic measures may be implemented when non-pharmacologic measures are not successful in providing pain relief

- iii. Procedures requiring Pre Medication
 Infants undergoing the following procedures will receive pre medication as prescribed by the physician, surgeon or nurse practitioner:
 - ◆ PCVC Placement
 - ◆ Broviac Catheter Placement
 - ◆ Arterial/Venous Cutdown
 - ◆ Chest Tube Insertion and/or manipulation
 - ◆ Surgery
 - ◆ Endoscopy/Bronchoscopy
 Local anesthesia may also be given upon the discretion of the physician/surgeon or nurse practitioner performing the procedure
 - iv. Other procedures requiring pre medication shall be upon the discretion of the physician/NNP (i.e.: Lumbar Puncture)
 - v. Procedures Requiring Local Anesthesia and/or Sucrose Water (SW) Administration
 - ◆ Circumcision
 - ◆ Wound Suturing
 - vi. Notify the Resident Physician/NNP/Attending Physician for further orders
 - ◆ If the pain score remains the same or increases following pain medication administration, and the appropriate interval of time has elapsed for anticipated pain medication effectiveness
 - vii. Notify the Attending Physician
 - ◆ if there is disagreement between the Resident Physician/NNP and RN on the need for additional pain medication
 - viii. Anesthetic Medications and Pain Medications (See Appendix C)
- B. Sedation Assessment Considerations
1. Sedation is scored in addition to pain for each behavioral and physiologic criterion to assess the infant's response to stimuli
 2. Sedation does not need to be assessed/scored with every pain assessment
 3. Sedation is scored from 0 to -2 for each behavioral and physiological criteria, then summed and noted as a negative score (0 to -10)
 4. A score of 0 is given if the infant's response to stimuli is normal for their gestational age
 5. A negative score without the administration of opiates/sedatives may indicate:
 - a. The premature infant's response to prolonged or persistent pain/stress
 - b. Neurologic depression, sepsis or other pathology
- C. Withdrawal/Abstinence Assessment Considerations
- The nurse shall utilize the Finnegan Neonatal Abstinence Scoring Tool to evaluate for withdrawal.
1. Indications for assessment
 - a. The infant who has just undergone ECMO decannulation
 - b. The infant who is being weaned from continuous Opioid infusion
 - c. The infant exposed to intrauterine heroin, methadone, or other controlled substances
 2. Procedure for Assessment
 - a. Infants will be assessed at q 4 hours intervals
 - b. The infant with intrauterine heroin/methadone exposure shall be evaluated 2 hours after birth and then at every 4-hour intervals for 48 hours. Following the first 48 hours, assessments shall be once a shift unless otherwise directed by MD/NNP.

3. Procedure for weaning from Fentanyl Drip
All weaning orders and morphine orders are implemented in collaboration with the MD/NNP and must have an accompanying order
 - a. In general, Finnegan scores of >8 are considered indicative of withdrawal
 - b. If average of scores over 24 hours is <8, the infusion can be weaned by 0.5mcg/kg/hour every 12 hours as tolerated
 - c. If the patient's infusion has been weaned and subsequent Finnegan scores at >11 for 3 consecutive scoring periods, increase the infusion back to the previous rate prior to the attempted wean and notify the MD/NNP
 - d. Once the patient has successfully weaned to 0.5mcg/kg/hour, the patient should be converted to bolus morphine injections of either 0.1mg/kg q 2 hours or 0.2mg/kg q 4 hours (which is the equivalent of 0.5mcg/kg/hour of fentanyl)
 - e. Once the fentanyl drip is discontinued, the morphine dose should not be weaned for 24 hours
 - f. If after 24 hours, the Finnegan scores are <8-11 and the patient is stable, the morphine dose should be weaned by 0.05mg/kg/dose daily as tolerated based on the Finnegan scores
 - g. Once the morphine dose is weaned to 0.025mg/kg/dose, the dosing interval can be weaned daily, as determined by the Finnegan scores
 - h. If the Finnegan scores remain stable on a morphine dose of 0.025mg/kg q 8 to 12 hours, the morphine can be discontinued
 - i. Finnegan scoring should continue 48 hours after morphine is discontinued to assess any rebound withdrawal symptoms
4. Procedure for weaning from IV Morphine Bolus
All weaning orders are implemented in collaboration with the MD/NNP and must have an accompanying order
 - a. Finnegan scores should be done with each morphine dose. A score of 8 or less indicates that the baby is ready for weaning
 - b. The dose is decreased by 10% daily or 20% every 2-3 days as tolerated
 - c. The goal is not to have a Finnegan score of 0. The goal is a Finnegan score of about 8-11. The baby should be weaned if the score is less than 8 and the baby is stable.
 - d. If the baby is tolerating feedings, the morphine should be changed from IV to oral morphine. ORAL DOSES ARE 3-5 TIMES THAT OF IV DOSES
 - e. IV morphine should be weaned to 0.02-0.05mg/kg/dose before the drug is discontinued
 - f. Oral morphine is weaned to a dose of 0.5-0.1mg/kg/dose before the drug is discontinued
 - g. Other sedatives may be ordered upon the discretion of the MD/NNP as the morphine is weaned
5. Sedative Medications (see Appendix D)

VIII. DOCUMENTATION INCLUDES

- A. Performance and score of pain assessment/sedation
- B. Performance and score of abstinence assessment
- C. Non-pharmacologic interventions
- D. Pain medication administration on the MAR
- E. Response to pain medication and sucrose water administration
- F. All parent teaching regarding pain assessment, management and comfort

IX. REFERENCE

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N-PASS: Neonatal Pain, Agitation, & Sedation Scale

Assessment Criteria	Sedation		Sedation/Pain	Pain / Agitation	
	-2	-1	0/0	1	2
Crying Irritability	No cry with painful stimuli	Moans or cries minimally with painful stimuli	No sedation/ No pain signs	Irritable or crying at intervals Consolable	High-pitched or silent-continuous cry Inconsolable
Behavior State	No arousal to any stimuli No spontaneous movement	Arouses minimally to stimuli Little spontaneous movement	No sedation/ No pain signs	Restless, squirming Awakens frequently	Arching, kicking Constantly awake or Arouses minimally / no movement (not sedated)
Facial Expression	Mouth is lax No expression	Minimal expression with stimuli	No sedation/ No pain signs	Any pain expression intermittent	Any pain expression continual
Extremities Tone	No grasp reflex Flaccid tone	Weak grasp reflex ↓ muscle tone	No sedation/ No pain signs	Intermittent clenched toes, fists or finger splay Body is not tense	Continual clenched toes, fists, or finger splay Body is tense
Vital Signs HR, RR, BP, SaO₂	No variability with stimuli Hypoventilation or apnea	< 10% variability from baseline with stimuli	No sedation/ No pain signs	↑ 10-20% from baseline SaO ₂ 76-85% with stimulation - quick ↑	↑ > 20% from baseline SaO ₂ ≤ 75% with stimulation - slow ↑ Out of sync/fighting vent

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Premature Pain Assessment

+ 1 if <30 weeks gestation / corrected age

Assessment of Sedation

- Sedation is scored in addition to pain for each behavioral and physiological criteria to assess the infant's response to stimuli
- Sedation does not need to be assessed/scored with every pain assessment/score
- Sedation is scored from 0 → -2 for each behavioral and physiological criteria, then summed and noted as a negative score (0 → -10)
 - A score of 0 is given if the infant has no signs of sedation, does not under-react
- Desired levels of sedation vary according to the situation
 - "Deep sedation" → goal score of -10 to -5
 - "Light sedation" → goal score of -5 to -2
 - Deep sedation is not recommended unless an infant is receiving ventilatory support, related to the high potential for hypoventilation and apnea
- A negative score without the administration of opioids/ sedatives may indicate:
 - The premature infant's response to prolonged or persistent pain/stress
 - Neurologic depression, sepsis, or other pathology

Paralysis/Neuromuscular blockade

- It is impossible to behaviorally evaluate a paralyzed infant for pain
- Increases in heart rate and blood pressure at rest or with stimulation may be the only indicator of a need for more analgesia
- Analgesics should be administered continuously by drip or around-the-clock dosing
 - Higher, more frequent doses may be required if the infant is post-op, has a chest tube, or other pathology (such as NEC) that would normally cause pain
 - Opioid doses should be increased by 10% every 3-5 days as tolerance will occur without symptoms of inadequate analgesia

Assessment of Pain/Agitation

- Pain assessment is the fifth vital sign - assessment for pain should be included in every vital sign assessment
- Pain is scored from 0 → +2 for each behavioral and physiological criteria, then summed
 - Points are added to the premature infant's pain score based on the gestational age to compensate for the limited ability to behaviorally communicate pain
 - Total pain score is documented as a positive number (0 → +11)
- Treatment/interventions are suggested for scores > 3
 - Interventions for known pain/painful stimuli are indicated before the score reaches 3
- The goal of pain treatment/intervention is a score ≤ 3
- More frequent pain assessment indications
 - Indwelling tubes or lines which may cause pain, especially with movement (e.g. chest tubes) → at least every 2-4 hours
 - Receiving analgesics and/or sedatives → at least every 2-4 hours
 - 30-60 minutes after an analgesic is given for pain behaviors to assess response to medication
 - Post-operative → at least every 2 hours for 24-48 hours, then every 4 hours until off medication

Scoring Criteria

Crying / Irritability

- 2 → No response to painful stimuli
 - No cry with needle sticks
 - No reaction to ETT or nares suctioning
 - No response to care giving
- 1 → Moans, sighs, or cries (audible or silent) minimally to painful stimuli, e.g. needle sticks, ETT or nares suctioning, care giving
- 0 → No sedation signs or No pain/agitation signs
- +1 → Infant is irritable/crying at intervals - but can be consoled
 - If intubated - intermittent silent cry
- +2 → Any of the following
 - Cry is high-pitched
 - Infant cries inconsolably
 - If intubated - silent continuous cry

Behavior / State

- 2 → Does not arouse or react to any stimuli:
 - Eyes continually shut or open
 - No spontaneous movement
- 1 → Little spontaneous movement, arouses briefly and/or minimally to any stimuli
 - Opens eyes briefly
 - Reacts to suctioning
 - Withdraws to pain
- 0 → No sedation signs or No pain/agitation signs
- +1 → Any of the following
 - Restless, squirming
 - Awakens frequently/easily with minimal or no stimuli
- +2 → Any of the following
 - Kicking
 - Arching
 - Constantly awake
 - No movement or minimal arousal with stimulation (not sedated, inappropriate for gestational age or clinical situation)

Extremities / Tone

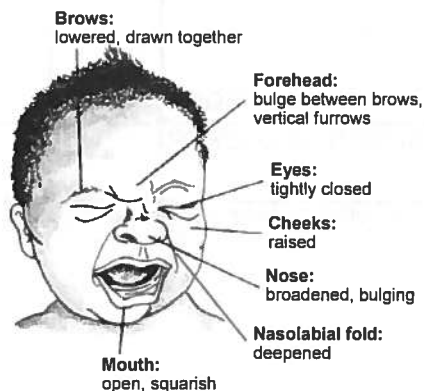
- 2 → Any of the following
 - No palmar or planter grasp can be elicited
 - Flaccid tone
- 1 → Any of the following
 - Weak palmar or planter grasp can be elicited
 - Decreased tone
- 0 → No sedation signs or No pain/agitation signs
- +1 → Intermittent (<30 seconds duration) observation of toes and/or hands as clenched or fingers splayed
 - Body is *not* tense
- +2 → Any of the following
 - Frequent (≥30 seconds duration) observation of toes and/or hands as clenched, or fingers splayed
 - Body is tense/stiff

Vital Signs: HR, BP, RR, & O₂ Saturations

- 2 → Any of the following
 - No variability in vital signs with stimuli
 - Hypoventilation
 - Apnea
 - Ventilated infant - no spontaneous respiratory effort
- 1 → Vital signs show little variability with stimuli - less than 10% from baseline
- 0 → No sedation signs or No pain/agitation signs
- +1 → Any of the following
 - HR, RR, and/or BP are 10-20% above baseline
 - With care/stimuli infant desaturates minimally to moderately (SaO₂ 76-85%) and recovers quickly (within 2 minutes)
- +2 → Any of the following
 - HR, RR, and/or BP are > 20% above baseline
 - With care/stimuli infant desaturates severely (SaO₂ < 75%) and recovers slowly (> 2 minutes)
 - Out of sync/fighting ventilator

Facial Expression

- 2 → Any of the following
 - Mouth is lax
 - Drooling
 - No facial expression at rest or with stimuli
- 1 → Minimal facial expression with stimuli
- 0 → No sedation signs or No pain/agitation signs
- +1 → Any pain face expression observed intermittently
- +2 → Any pain face expression is continual



Facial expression of physical distress and pain in the infant

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**Appendix B
Finnegan Neonatal Abstinence Scoring Tool**

SIGNS AND SYMPTOMS	SCORE	AM				PM				COMMENTS
Excessive Cry (high pitched or other)	2									
Continuous Cry (high pitched or other)	3									
Sleeps < 1 hour after feeding	3									
Sleeps < 2 hours after feeding	2									
Sleeps < 3 hours after feeding	1									
Hyperactive Moro Reflex	2									
Markedly Hyperactive Moro Reflex	3									
Mild tremors when disturbed	1									
Moderate-severe tremors when disturbed	2									
Increased muscle tone	2									
Excoriation (Specific area)	1									
Myoclonic jerks	3									
Generalized convulsions	5									
Sweating	1									
Fever < 101 (99-100.8 F)	1									
Fever > 101 F	2									
Frequent yawning (>3-4 times/interval)	1									
Mottling	1									
Nasal Stuffiness	1									
Sneezing (>3-4 times/interval)	1									
Nasal Flaring	2									
Respiratory rate > 60/min	1									
Respiratory rate > 60/min with retractions	2									
Excessive Sucking	1									
Poor feeding	2									
Regurgitation	2									
Projectile vomiting	3									
Loose stools	2									
Watery stools	3									
TOTAL SCORE										
INITIALS OF SCORER										

Finnegan L. Neonatal Abstinence. In Nelson N. editor: Current therapy in neonatal-perinatal medicine. Ontario, 1984. CB Decker, Inc.

Special Instructions for Finnegan Abstinence Scoring Tool

1. Infants will be assessed @ 4 hour intervals
2. Infants with intrauterine heroin/methadone exposure shall be evaluated 2 hours after birth and then @ q 4h intervals for 48 hours
3. If the score is >8, scoring goes to q 2 hour intervals
4. In general, Finnegan scores of >8 suggest withdrawal
5. All symptoms exhibited during the entire scoring interval (2-4 hours) should be included in the score given
6. If the baby is stable, with average scores of <8 for 24 hours, the baby should be weaned
7. Scoring should continue 48 hours after all narcotics have been discontinued
8. Document scores in appropriate column on the patient flow sheet as indicated

Appendix C

Anesthetic Measures

I. Lidocaine

- A. Indications: topical anesthesia
- B. Dose: 2.0-4.5 mg/kg SQ (using the 0.5% solution)
- C. Duration of Action: 90-200 minutes
- D. Potential Complications: Problems can arise if >0.5% solution is used, because of toxicity
- E. Special Considerations
 - 1. The total dose should not exceed 5mg/kg or 1ml of the 0.5% solution
 - 2. Inject slowly with a 27 or 30-gauge needle to reduce pain associated with injection
 - 3. Do not repeat dose within 2 hours of previous dose

II. Topical Anesthetic Cream

- C. Indications: topical anesthesia in the baby who:
 - 1. older than one month of age
 - 2. has normal intact skin
- D. Dose: 0.5-2.0 g under occlusive dressing 1 hour prior to anticipated procedure
- E. Onset of Action: 60 minutes
- F. Potential Complications: Methemoglobinemia may be induced by prilocaine component

Do not use EMLA:

 - 1. in preterm infants <37 weeks
 - 2. infants < one month of age
 - 3. infants with methemoglobinemia or those receiving treatment with methemoglobin-inducing agents
 - 4. for chest tube insertions
- G. Special Considerations: Use in circumcisions controversial

Opioid Pain Medication Administration:

Narcan for reversal should be readily available whenever administering Fentanyl or Morphine

I. Fentanyl

- A. Indications: Sedation/Analgesia/Anesthesia
- B. Dose: 1-4mcg/kg/dose given IV, slowly over at least 3-5 minutes (rapid doses may result in chest wall rigidity) and repeat as required q 2-4hours

Note:

 - 1. Continuous drip infusion 1-5mcg/kg/hour
 - 2. Infusions for ECMO/Postoperative Cardiac patients may be higher
 - 3. Prior to starting continuous drip infusion, a bolus dose of 1-4 mcg/kg IVSP, as described above, should be administered
- C. Onset of Action: 1-2 minutes IV

II. Morphine Sulfate

- A. Indications: Sedation/Analgesia/Abstinence
- B. Dose for pain: 0.05-0.2mg/kg/dose IVSP over 5 minutes and repeat q 4 -6 hours as needed for the premature infant and every 2-4 hours in the term infant
 - 1. Continuous drip infusion for pain:
 - a. 0.01-0.03mg/kg/hour
 - b. Oral Dose: 3-5 greater than parenteral dose
- C. Onset of Action: 20 minutes IV (must give 20 minutes before start of procedure)
- D. Potential Complications of Opioid Pain Medications:
 - 1. Need for increased respiratory support
 - 2. Hypotension
 - 3. Fluid overload
 - 4. GI dysfunction
 - 5. Bladder dysfunction
 - 6. Tolerance/Dependence
 - 7. Muscle rigidity
 - 8. Histaminic effect [] hypotension, bradycardia, flushing

III. Other Agents**A. Acetaminophen**

1. Indications: treatment of mild to moderate pain
2. Dose: 10-15mg/kg per dose PO
20mg/kg per dose PR
 - a. Maintenance intervals:
 - i. Preterm infants <32 weeks: q 12 hours
 - ii. Preterm infants ≥32 weeks: q 8 hours
 - iii. Term infants: q 4-6 hours
3. Onset of Action: 60 minutes after oral dose
4. Note:
Acetaminophen potentiates the opioid effect. May be given in conjunction with opioid to lower the opioid dose.
5. Adverse Reactions: liver toxicity occurs with excessive doses. Elimination prolonged in patients with liver dysfunction

B. Sucrose Water (SW) -requires a MD/NNP order in term / newborn nursery

1. Indications: relief of mild to moderate procedural pain in infants ≥34 weeks gestation who are:
 - a. Are feeding by mouth
 - b. Not exhibiting evidence of feeding problems or hyperglycemia
 - c. Not at risk for NEC (asphyxiated infants, infants with CHD)
2. Dose:
 - a. 1cc of D24W may be given by droplet on tip of the tongue 2 minutes prior to minor procedure
 - b. If the infant is using a pacifier, the pacifier can be used in conjunction with the sucrose water to enhance the analgesic effect
3. Onset of Action: 2 minutes
4. Special Considerations:
 - a. Sucrose water can be administered no more than once an hour and no more than four times in one 24-hour period
5. Document administration of sucrose water on MAR
6. In Neonatal Intensive Care, see "Use of 24% Sucrose in the Neonatal Units".

Appendix D**Sedative Medication Administration**

- I. Versed (midazolam)**
- A. Indications: sedative/hypnotic
 - B. Dose: 0.05-0.15mg/kg IVSP over at least 5 minutes (dose requirement decreased by concurrent use of narcotics)
Continuous IV drip dose: 0.01-0.06 mg/kg/hour
Intranasal dose: 0.2-0.3mg/kg/dose using a 5mg/ml injectable preparation
 - C. Onset of Action: 5-7 minutes IV
 - D. Adverse Reactions:
Respiratory distress/hypotension is common when used in conjunction with narcotics or with rapid IV bolus. Seizure like myoclonus in preterm receiving continuous drip or rapid IV bolus
Potential discomfort with intranasal second to burning sensation
- II. Chloral Hydrate**
- A. Indications: sedative/hypnotic
 - B. Dose: 25-75mg/kg/dose PO or PR
 - C. Onset of Action: 30-60 minutes PO/PR
 - D. Adverse Reactions:
 - 1. GI irritation; paradoxical excitement.
 - 2. With toxic effects from acute overdosing, CNS depression/respiratory depression/myocardial depression and arrhythmia have been reported
- III. Ativan (Lorazepam)**
- A. Indications: anticonvulsant/sedative
 - B. Dose: 0.05-0.1mg/kg/dose IVSP
 - C. Onset of Action: 15-30 minutes IV
 - D. Adverse Reactions:
 - 1. Respiratory depression
 - 2. Rhythmic myoclonic jerking in premature infant receiving for sedation
- IV. Phenobarbital**
- A. Indications: sedation
 - B. Dose:
 - 1. load with 10mg/kg and administer IVSP over 10-15 minutes.
 - 2. Maintenance dose is 5mg/kg/day IV or PO*
 - 3. *If side effects of somnolence or decreased feeding ability occur, dose may be decreased by 50%.
 - 4. Wean by 10% every day or every other day based on withdrawal inventory
 - C. Onset of Action: 10-30 minutes IV or within 60 minutes PO
 - D. Adverse Reactions:
 - 1. Respiratory depression with levels >60mcg/ml and sedation with levels >40mcg/ml
 - 2. Myocardial depression with excessive doses
- V. Methadone**
- A. Indications: Sedation
 - B. Dose: 0.05-0.2mg/kg per dose PO/IV (interval may be increased up to q 6 hours)
 - C. Onset of Action: 1-2 hours IV
 - D. Wean:
 - E. Once methadone started, decrease narcotic by 30% and then wean narcotic accordingly
 - F. Once narcotic discontinued, wean methadone by 10-20%, per withdrawal inventory over the next 4-6 weeks
 - G. Adverse Reactions:
 - H. Respiratory depression with excessive doses
 - I. Delayed gastric emptying