

Neonatal Post Operative Pain Management

Purpose: Utilize Neonatal Pain, Agitation & Sedation Score (N-PASS) to guide the management of post operative pain in neonates.

Inclusion: Any neonate that undergoes an invasive procedure requiring pain management.

Exclusion: Any infant on continuous neuromuscular blockade. Neuromuscular blockade provides no analgesic or sedative effect and should only be used with appropriate neuro-sedative regimen directed by vital signs.

Guidelines:

- The below algorithms should be utilized only in the **first 24 hours after post procedure**. There is an algorithm for mild pain (page 3) and moderate or severe pain (page 4).
- For **pain management beyond 24 hours post procedure** the use of PRN medications should be as follows:
 - If pain medication is given more often than or equal to every 3 hours, then initiate a morphine drip or increase dose.
 - If pain medication is given every 4-7 hours, then maintain the current analgesic dose.
 - If pain medication is given less than or equal to every 8 hours, then wean or discontinue neuro-sedatives starting with drips.
 - Do not discontinue pain management beyond 24 hours if still clinically indicated.

Neonatal Pain, Agitation & Sedation Score (N-PASS)					
Assessment Criteria	Sedation		Sedation/Pain	Pain/Agitation	
	- 2	- 1	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 Scale	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 Decreased 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 not tense
Vital Signs	No variability with stimuli Hypoventilation or apnea	<10% from baseline with stimuli	No sedation/ No pain signs	Increase 10% to 20% from baseline SaO ₂ 76%-85% with stimulation: quick increase	Increase >20% from baseline SaO ₂ ≥ 75% with stimulation: slow increase Out of synch or fighting vent

* Pharmacologic management for pain utilizes medications that cause sedation, therefore following a sedation score is an appropriate way to manage the patient's pain control and sedation.*

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Non-Pharmacologic Comfort Measures

- Repositioning - positioning the neonate appropriate to their gestational maturation, supporting limbs/ trunk and taking care with any attached lines or equipment (i.e. supine or side lying). Rolls or position aids (or nests) can also be used.
 - Swaddling
 - Nesting
 - Facilitated tucking
 - Containment holding
- Decreasing environmental sensors (noise/ light)
- Tactile soothing
- Talking to neonate
- Diaper change
- Non-nutritive sucking
- Allowing neonate to grasp a finger
- Skin to skin care for the newborn (Kangaroo Care)
- Clustering, developmental or cue- based care

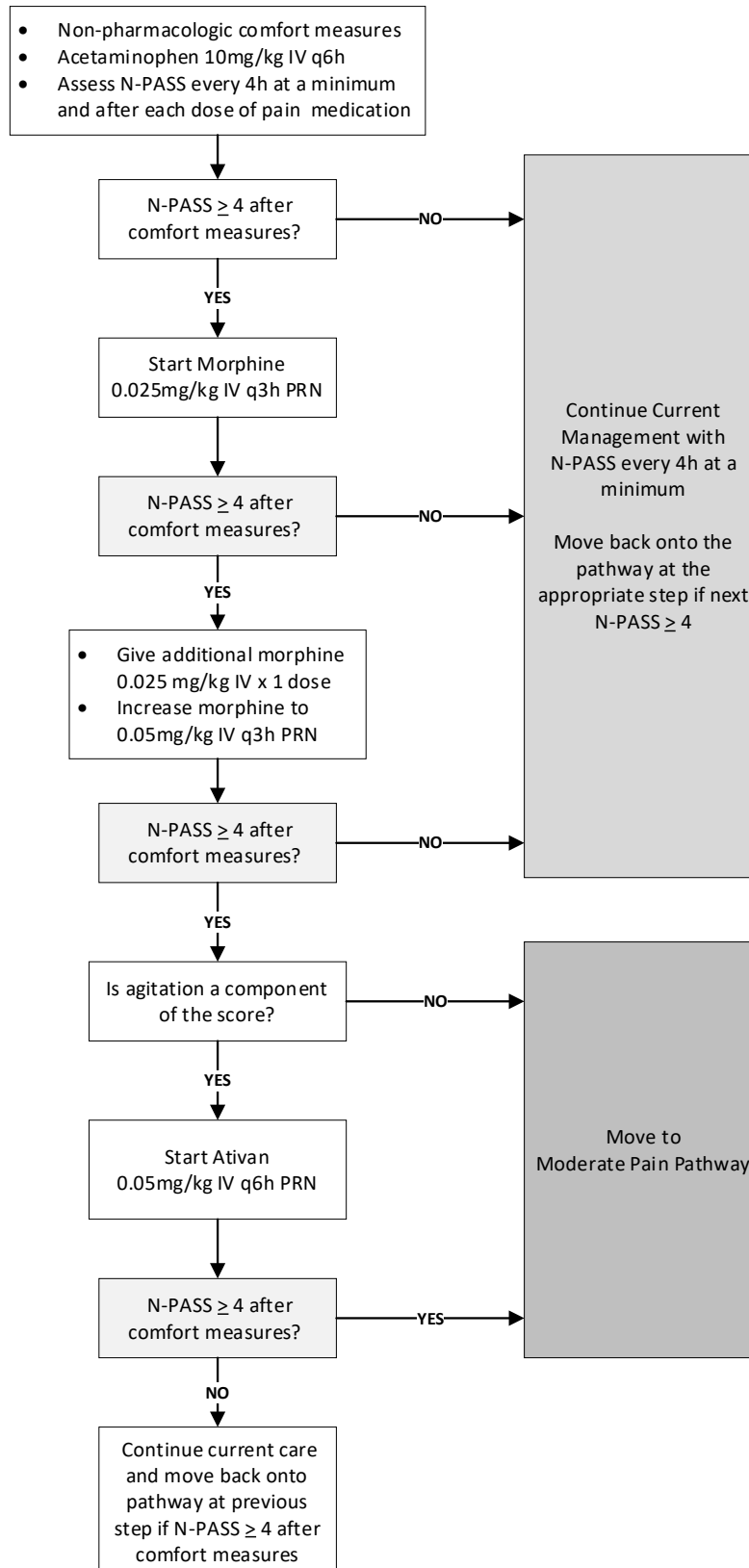
Choosing a Neonatal Post Operative Pain Algorithm

<i>Examples of Minor Procedures</i>	<i>Examples of Major Procedures</i>
<ul style="list-style-type: none"> • Inguinal hernia repair • G-tube insertion • Pyloromyotomy • Ostomy (non-NEC) • VP shunt/reservoir placement • Myelomeningocele repair • Primary gastroschisis closure 	<ul style="list-style-type: none"> • Abdominal drain insertion complicated by NEC • Exploratory laparotomy • Placement of silo for gastroschisis • Repair of incarcerated/Giant hernia • CDH repair • TEF repair • Thoracotomy/indwelling chest tube • Tracheostomy • Tongue-lip adhesion/distractor placement • PDA Ligation

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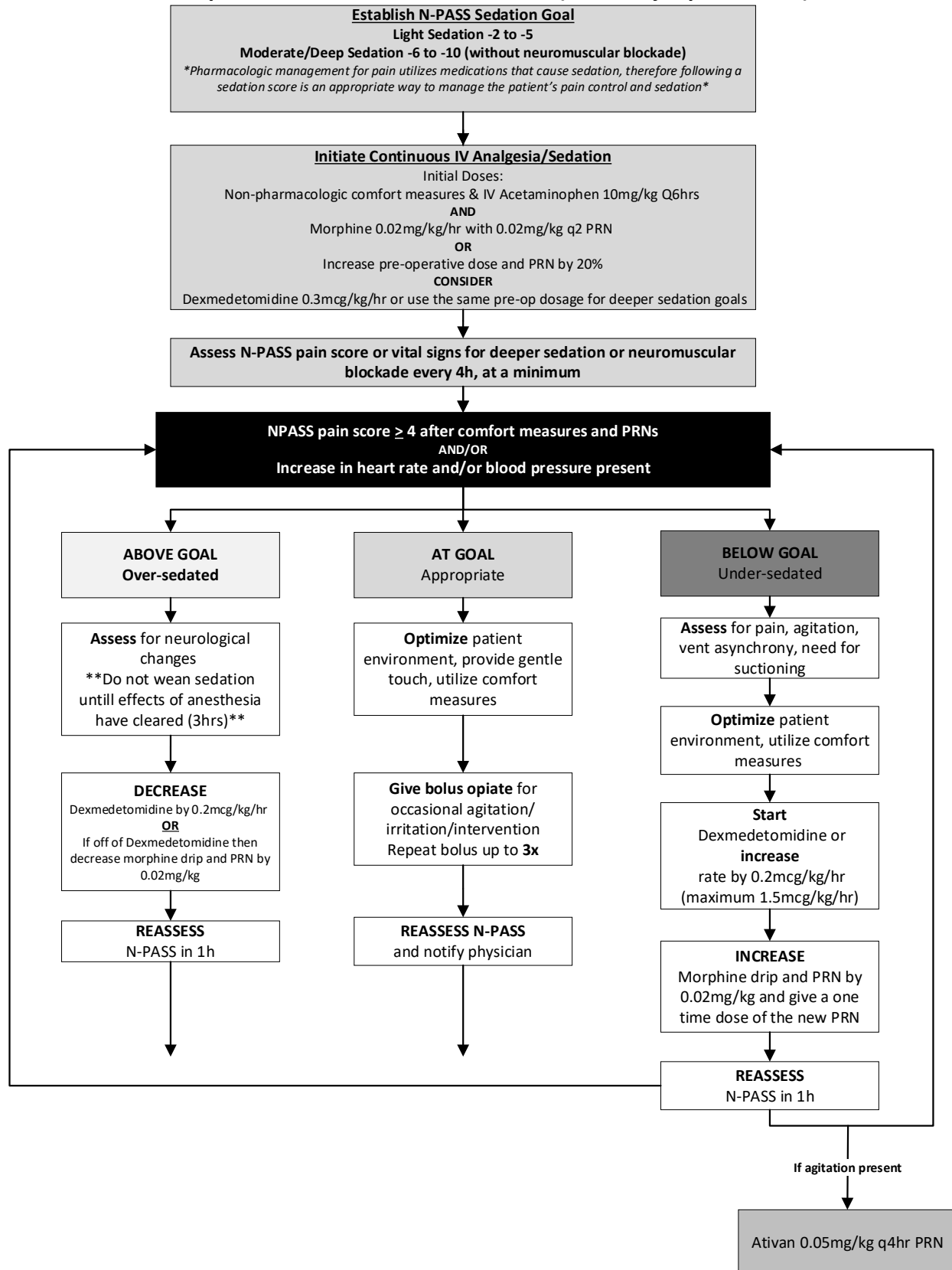
Post Operative Mild Pain (most minor procedures)



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Post Operative Moderate or Severe Pain (most major procedures)



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