Clinical Guideline
Sedation for Mechanical Ventilation

Pediatric Intensive Care Unit

⚠ This guideline should not replace clinical judgment.

CHoR PICU Sedation Cheat Sheet

Use in conjunction with PICU Sedation Guidelines for Mechanically Ventilated Patients: HYDROmorphone, fentaNYL, MORPHINE

PICU Sedation Ordersets

Nursing Orders: RASS Goal, Dosing weight, PRN reasons AND what to give 1st, 2nd, etc.

General Conversions:

0.1 mg morphine = 0.02 mg HYDROmorphone = 1 mcg fentaNYL

LORazepam 0.1 mg/kg = 0.2 mg/kg midazolam

Definitions

RASS: Richmond Agitation and Sedation Scale (see Table 1)
MS: Mental Status
HR: Heart Rate
BP: Blood Pressure
RESP: Respirations
Pre-CARES: Nursing care ie baths, turns, suctioning, etc.
TBI: Traumatic Brain Injury
MAX: Maximum

ALPHA-ADRENERGIC AGONIST	DOSING	ONSET/ DURATION	MS	HR	BP	RESP	OTHER
Dexmedetomidine **DEXMED** **Precedex**	**Initial bolus:** 0.5-1 mcg/kg IV give over *10-20 min (MAX 50 mcg) **PRN bolus: pre-CARES** **0.5-1 mcg/kg IV hourly for pre-cares every hr **Initial Infusion:** 0.4 mcg/kg/hr ↑ by 0.1-0.2 mcg/kg/hr MAX infusion 1.5 mcg/kg/hr	Onset 5-10 mins Peak 15-30 min Duration 1-2 hr	↓	↓	↓	–	↓HR, BP at ↑ doses/boluses Do not use in heart block Atropine can cause sustained hypertension Frequently paired with opioid continuous infusion If use >72 hrs, then withdrawal can occur, primarily agitation, ↑ HR, N/V/D, ↓ sleep *PRNs given over 20 min in neonates **PRN pre-CARES dosing should be ≤ hourly rate
OPIOIDS	**DOSING**	**ONSET/ DURATION**	**MS**	**HR**	**BP**	**RESP**	**OTHER**
HYDROmorphone **Dilaudid** 1st line	**Initial bolus:** 0.02 mg/kg IV (MAX 1 mg) **PRN bolus** = hourly infusion dose every hr **Initial Infusion:** **< 60kg:** 0.01 mg/kg/hr ↑ by 0.002 mg/kg/hr **≥ 60kg:** 0.005 mg/kg/hr ↑ by 0.001-0.002 mg/kg/hr MAX increase by 0.1 mg/hr MAX infusion 0.1 mg/kg/hr	Onset 5 mins Peak 10-20 min Duration 3-4 hr	↓	–	–	↓	Dosing is for intubated patients HYDROmorphone 1st Line

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CHoR PICU Sedation for Mechanical Ventilation Cheat Sheet continued

OPIOIDS	DOSING	ONSET/ DURATION	MS	HR	BP	RESP	OTHER
fentaNYL 2nd line OR 1st line in TBI, Hemodynamically UNSTABLE Or anticipated short term (<48 hr) intubation	**Initial bolus:** 1-2 mcg/kg IV (MAX 50 mcg) **PRN bolus** = hourly infusion dose every hr **Initial Infusion:** **< 60kg:** 1 mcg/kg/hr ↑ by 0.5-1 mcg/kg/hr **≥ 60kg:** 0.5 mcg/kg/hr ↑ by 0.25-0.5 mcg/kg/hr MAX infusion: 5 mcg/kg/hr	Onset 2-3 min Duration 30-45 min	↓	–	–	↓	Best for hemodynamically UNSTABLE pts, TBI, post procedural due to short duration Rigid chest with rapid IV push Consider change to HYDROmorphone infusion if dose 3-4 mcg/kg/hr and/ or duration >3-4 days due to tachyphylaxis
Morphine	**Initial bolus:** 0.05-0.1 mg/kg IV (MAX 4 mg) **PRN bolus** = hourly infusion dose every hr **Initial Infusion:** **< 60kg:** 0.05 mg/kg/hr ↑ by 0.01-0.02 mg/kg/hr **≥ 60kg:** 0.025mg/kg/hr ↑ by 0.01-0.02 mg/kg/hr MAX infusion: 0.5 mg/kg/hr	Onset 5-10 min Duration 4 hrs	↓	–	↓	↓	Use with caution in renal failure Histamine release If using as adjunct with other sedative infusions dosing may be lower
BENZODIAZEPINES	**DOSING**	**ONSET/ DURATION**	**MS**	**HR**	**BP**	**RESP**	**OTHER**
Midazolam **Versed** **(Sedative dosing)**	**Initial bolus:** 0.05-0.1 mg/kg IV (MAX 4 mg) **PRN bolus** = hourly infusion dose every hr **Initial Infusion:** **< 60kg:** 0.05 mg/kg/hr ↑ by 0.02 mg/kg/hr **≥ 60kg:** 0.025mg/kg/hr ↑ by 0.01-0.02 mg/kg/hr MAX infusion: 0.36 mg/kg/hr (higher dosing may be needed in refractory status epilepticus)	Onset 2-5 min Duration 30-45 min	↓	–	↓	↓	Resp depression and ↓ BP at high doses Benzos associated with increased risk of delirium Consider instead of dexmedetomidine in infants prone to bradycardia Consider using PRN/Scheduled LORazepam in place of midazolam infusion
LORazepam **Ativan** IV = PO (tablets)	**PRN or scheduled bolus:** 0.05-0.1 mg/kg IV/PO every 2-6 hrs MAX initial dose 2mg *Rescue PRN doses: Give IV	**IV** Onset 2-3 min Duration 6 hrs **PO** 60 min	↓	–	↓	↓	Longer acting benzodiazepine Use with caution if planned extubation or TBI, consider intermittent PRN midazolam instead

CHoR PICU Sedation for Mechanical Ventilation Cheat Sheet continued

ANESTHETICS	DOSING	ONSET/ DURATION	MS	HR	BP	RESP	OTHER
Propofol **Diprivan**	**Initial bolus:** 1-2 mg/kg IV **Initial Infusion:** 25 mcg/kg/min ↑ by 5-10 mcg/kg/min every 5-10 min to desired effect MAX infusion: 125 mcg/kg/min This is based on adult, intubated patient data	Onset 2-3 min Duration 10-15 min	↓↓	–	↓↓	↓	Sedation Credentialed providers only (Anesthesia; PICU Attendings, Fellows, APPs) Propofol-related infusion syndrome (PRIS) . ↑ risk with dose >83mcg/kg/min and/or duration >48hrs. **Monitoring:** Lactate, ABG, BMP, CPK, LFTs Formulated in 10% fat emulsion check TG if infusion >48hr or dose > 50mcg/kg/min Do not use if pt has anaphylaxis to eggs Does not provide analgesia Used as "washout" for tachyphylaxis or as extubation "bridge"
Ketamine	**Initial bolus:** 0.5-2 mg/kg IV **Initial Infusion:** 0.3 mg/kg/hr ↑ by 0.01-0.02 mg/kg/hr MAX infusion: 1.5 mg/kg/hr	Onset 30-60 sec Duration 10-15 min	↓	↑	↑	↓	Emergence reactions: vivid dreams, hallucinations, delirium Pretreat or treat emergence reactions with benzodiazepines Laryngospasm, Hypersalivation Bronchodilation, Nystagmus

***Consider Pediatric Pain/Supportive Care Consult if considering use of the following adjuncts

***ADJUNCTS	DOSING	ONSET/ DURATION	MS	HR	BP	RESP	OTHER
PHENobarbital **(Sedative dosing)** IV = PO (tablets, liquid)	2.5 mg/kg/dose IV/PO every 12 hrs May ↑ to every 6-8 hrs and/or ↑ to 5 mg/kg/dose Total MAX daily dosing: 2.5-5 mg/kg/dose every 6-8 hrs	**IV** Onset 2-3 min Duration 6 hrs **PO** 60 min	↓↓	↓	↓↓	↓	Long acting barbiturate Check levels daily (Goal range 20-25 mg/L) Levels > 60 mg/L toxic Myocardial depressant, coma, hypotension, apnea
Methadone *Only ORAL(tablets, liquid) formulation routinely available; inquire about IV availability before ordering	0.05-0.1 mg/kg/dose PO/IV * every 6-8 hrs MAX initial: 10mg/dose	**Single dose:** Onset 30-60 min Duration 4-8 hrs **Repeat doses:** Duration: 22-48 hrs >100 hrs in some pts	↓	–	↓	↓	Opioid/NMDA receptor antagonist ↑ QTc **Monitoring:** EKG at baseline, with dose increases and addition of other QTc prolonging meds, weekly while on therapy Use with caution in hepatic impairment

CHoR PICU Sedation for Mechanical Ventilation Cheat Sheet continued

ATYPICAL ANTIPSYCHOTIC	DOSING	ONSET/ DURATION	MS	HR	BP	RESP	OTHER
QUEtiapine **Seroquel** Available as ORAL tablets only	**7-15 kg:** 6.25 mg every day PO (MAX 6 mg/kg/day) **>15-20 kg:** 12.5 mg every day (MAX 6 mg/kg/day) **>20-40 kg:** 18.5 mg every day (MAX 8 mg/kg/day) **>40-60 kg:** 25 mg every day (MAX 200 mg/day) **> 60 kg:** 25-50 mg every day (MAX 300 mg/day) MAY add PRN 1x daily dosing ± may ↑ to every 12 hrs	Time to peak 30 min-3 hrs 1/2 life: 6 hr Metabolized 1/2 life: 12hr	–	↑	↑↓	–	Used for delirium and/or sedation Start with bedtime dosing helps with sleep due to sedation effect ↑ QTc **Monitoring:** EKG at baseline, with dose increases and addition of other QTc prolonging meds, weekly while on therapy CBC twice weekly: ↓ Hgb, WBC, PLT
RisperiDONE **Risperdal** Available as ORAL tablets, liquid and oral disintegrating tablets	**Infants:** 0.05-0.1 mg PO twice daily **<5yrs:** 0.1-0.2 mg twice daily **≥5yrs:** 0.2-0.5 mg twice daily Usual range: 0.2-2.5 mg/day MAX Doses: **<20kg:** 1 mg/day **20-45 kg:** 2.5 mg/day **>45 kg:** 3 mg/day	Time to peak w/in 60 min 1/2 life: 20 hr	–	↓	↑↓	–	↑ QTc **Monitoring:** EKG at baseline, with dose increases and addition of other QTc prolonging meds, weekly while on therapy Extrapyramidal Symptoms (EPS) risk alpha1, alpha2 adrenergic, and histamine receptors antagonized

TABLE 1. RICHMOND AGITATION-SEDATION SCALE

Score	Term	Description
+4	Combative	Overtly combative or violent; immediate danger to staff
+3	Very agitated	Pulls on or removes tube(s) or catheter(s) or has aggressive behavior toward staff
+2	Agitated	Frequent nonpurposeful movement or patient-ventilator dyssynchrony
+1	Restless	Anxious or apprehensive but movements not aggressive or vigorous
0	Alert and calm	
-1	Drowsy	Not fully alert, but has sustained (more than 10 seconds) awakening, with eye contact, to voice
-2	Light sedation	Briefly (less than 10 seconds) awakens with eye contact to voice
-3	Moderate sedation	Any movement (but no eye contact) to voice
-4	Deep sedation	No response to voice, but any movement to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

Procedure

1. Observe patient. Is patient alert and calm (score 0)?
   Does patient have behavirot that is consistent with restlessness or agitation (score +1 to +4 using the criteria listed above, under description)?
2. If patient is not alert, in a loud speaking voice state patient's name and direct patient to open eyes and look at speaker. Repeat once if necessary. Can prompt patient to continue looking at speaker.
   Patient has eye opening and eye contact, which is sustained for more than 10 seconds (score -1).
   Patient has eye opening and eye contact,but this is not sustained for 10 seconds (score -2).
   Patient has any movement in response to voice, excluding eye contact (score -3).
3. If patient does not respond to voice, physically stimulate patient by shaking shoulder and then rubbing sternum if there is no response to shaking shoulder.
   Patient has any movement to physical stimulation (score -4).
   Patient has no response to voice or physical stimulation (score -5).

Clinical Guideline

Sedation - HYDROmorphone

Pediatric Intensive Care Unit

⚠ This guideline should not replace clinical judgment.

Goal RASS _____
Low HR _____
Low BP _____

EXCLUSION CRITERIA: Allergy, MD request, severe acute neurologic disorder, epidural/PCA until d/c, ECMO, heart block

*** Exclude any sedation utilized for procedures in totals *** * If patient has low HR or BP, then discuss with provider.

Admission/ intubation through Hour 1

1. Load dexmedetomidine (DEXMED) 0.5-1 mcg/kg IV over 10 min (MAX 50 mcg) and start infusion at 0.4 mcg/kg/hr*
2. Bolus HYDROmorphone 0.02 mg/kg (initial MAX: 1 mg/dose) IV every 15 minutes PRN to achieve goal RASS

If a HYDROmorphone bolus is needed, consider starting HYDROmorphone infusion
- < 60 kg: start HYDROmorphone infusion at 0.01 mg/kg/hr
- ≥ 60 kg: start HYDROmorphone infusion at 0.005 mg/kg/hr

3. If not at goal RASS at end of first hour, re-bolus DEXMED 1 mcg/kg over 10 min (MAX 50 mcg) and ↑ DEXMED infusion to 0.8 mcg/kg/hr*
4. Order scheduled or PRN acetaminophen or ibuprofen/ketorolac for fever or pain not associated with maintaining RASS

Hours 2 and 3

Goal RASS maintained?

yes

1. Continue current dose of DEXMED and/or HYDROmorphone infusions
2. If needed, follow progression outlined in 1st hour

no

1. First, maximize progression outlined in 1st hour, then
2. Continue HYDROmorphone 0.02 mg/kg IV every 15 min (MAX 1 mg/dose) PRN RASS > goal
3. If >3 boluses in 2 hrs, then ↑ HYDROmorphone infusion by 0.001-0.002 mg/kg/hr
4. For RASS not achieved with PRN HYDROmorphone boluses, give LORazepam 0.1 mg/kg/dose IV (MAX initial 2 mg) ONCE

Hour 4 and every 4 hours after first 24 hours

Goal RASS maintained?

yes

1. Continue current dose of DEXMED and/or HYDROmorphone infusions
2. Bolus DEXMED 0.5-1 mcg/kg over 10 min (MAX 50 mcg) every hr PRN pre-CARES*
3. Bolus HYDROmorphone hourly infusion dose every hour PRN RASS > goal, INITIAL

no

1. Bolus HYDROmorphone hourly infusion dose every hour PRN RASS > goal, INITIAL
2. If >3 PRNs in 4 hrs, ↑ HYDROmorphone infusion by 0.001-0.002 mg/kg/hr
3. For RASS goal not achieved with PRN HYDROmorphone, consider
   a. Re-bolus DEXMED 0.5-1 mcg/kg IV over 10 min (MAX 50 mcg) and ↑ DEXMED infusion by 0.2-0.5 mcg/kg/hr (up to 1 or 1.5 mcg/kg/hr)*; OR
   b. Add LORazepam 0.1 mg/kg/dose (MAX 2 mg) every 2-6 hrs PRN RASS > goal, REFRACTORY
4. Consider Palliative/Supportive Care Consult: use of adjuncts

After the first 24 hours, reassess every 8 hours:
0800
1600
2400

Goal RASS consistently achieved?

yes

1. Continue infusions and PRN orders
2. If < 3 boluses of any kind given in 8 hours to meet RASS goal, then
   a. ↓ HYDROmorphone by 0.001 mg/kg/hr at 0800 and 2400 and
   b. ↓ DEXMED by 0.2 mcg/kg/hr at 1600
   (do not include procedural or pre-CARES boluses in PRN counts)

no

Confirm that the ordered RASS goal range in the electronic medical record is current.

If DEXMED 1.5 mcg/kg/hr, HYDROmorphone 0.1 mg/kg/hr, AND LORazepam 0.1 mg/kg/dose every 4 hours PRN RASS > goal is insufficient, "Guideline failure" reached.
Higher doses may be needed, but MD should be consulted for further strategy.
Consider Palliative/Supportive Care Consult: use of adjuncts

Prior to extubation
Consider increasing goal RASS.
Decrease HYDROmorphone and LORazepam PRNs by 50% and space frequency to every 4-6 hours
No PRNs for at least 4 hours prior to planned extubation.
Decrease or hold sedative infusions per APP, fellow or Attending MD.

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Clinical Guideline

Sedation - fentaNYL

Pediatric Intensive Care Unit

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Goal RASS _____
Low HR _____
Low BP _____

EXCLUSION CRITERIA: Allergy, MD request, severe acute neurologic disorder, epidural/PCA until d/c, ECMO, heart block

*** Exclude any sedation utilized for procedures in totals *** * If patient has low HR or BP, then discuss with provider.

Admission/ intubation through Hour 1

1. Load dexmedetomidine (DEXMED) 0.5-1 mcg/kg IV over 10 min (MAX 50 mcg) and start infusion at 0.4 mcg/kg/hr*
2. Bolus fentaNYL 1 mcg/kg (initial MAX: 50 mcg/dose) IV every 15 minutes PRN to achieve goal RASS
3. If a fentaNYL bolus is needed, consider starting fentaNYL infusion
   < 60 kg: start fentaNYL infusion at 1 mcg/kg/hr
   ≥ 60 kg: start fentaNYL infusion at 0.5 mcg/kg/hr
4. If not at goal RASS at end of first hour, re-bolus DEXMED 1 mcg/kg over 10 min (MAX 50 mcg) and ↑ DEXMED infusion to 0.8 mcg/kg/hr*
5. Order scheduled or PRN acetaminophen or ibuprofen/ketorolac for fever or pain not associated with maintaining RASS

Hours 2 and 3

Goal RASS maintained?

yes

1. Continue current dose of DEXMED and/or fentaNYL infusions
2. If needed, follow progression outlined in 1st hour

no

1. First, maximize progression outlined in 1st hour, then
2. Continue fentaNYL 0.5-1 mcg/kg IV every 15 min (MAX 50 mcg/dose) PRN RASS > goal
3. If >3 boluses in 2 hrs, then ↑ fentaNYL infusion by 0.25-0.5 mcg/kg/hr
4. For RASS not achieved with PRN fentaNYL boluses, give lorazepam 0.1 mg/kg/dose IV (MAX initial 2 mg) ONCE

Hour 4 and every 4 hours after first 24 hours

Goal RASS maintained?

yes

1. Continue current dose of DEXMED and/or fentaNYL infusions
2. Bolus DEXMED 0.5-1 mcg/kg over 10 min (MAX 50 mcg) every hour PRN pre-CARES*
3. Bolus fentaNYL hourly infusion dose every hour PRN RASS > goal, INITIAL

no

1. Bolus fentaNYL hourly infusion dose every hour PRN RASS > goal, INITIAL
2. If >3 PRNs in 4 hrs, ↑ fentaNYL infusion by 0.25-1 mcg/kg/hr
3. For RASS goal not achieved with PRN fentaNYL, consider
   a. Re-bolus DEXMED 0.5-1 mcg/kg IV over 10 min (MAX 50 mcg) and ↑ DEXMED infusion by 0.2-0.5 mcg/kg/hr (up to 1 or 1.5 mcg/kg/hr)*; OR
   b. Add LORazepam 0.1 mg/kg/dose (MAX 2 mg) every 2-6 hrs PRN RASS > goal, REFRACTORY
4. Consider Palliative/Supportive Care Consult: use of adjuncts

After the first 24 hours, reassess every 8 hours:
0800
1600
2400

Goal RASS consistently achieved?

no

yes

1. Continue infusions and PRN orders
2. If < 3 boluses of any kind given in 8 hours to meet RASS goal, then
   a. ↓ fentaNYL by 0.25 mcg/kg/hr at 0800 and 2400 and
   b. ↓ DEXMED by 0.2 mcg/kg/hr at 1600
   (do not include procedural or pre-CARES boluses in PRN counts)

Confirm that the ordered RASS goal range in the electronic medical record is current.

If DEXMED 1.5 mcg/kg/hr, fentaNYL 5 mcg/kg/hr, AND LORazepam 0.1 mg/kg/dose every 4 hours PRN RASS > goal is insufficient, "Guideline failure" reached.
Higher doses may be needed, but MD should be consulted for further strategy.
Consider Palliative/Supportive Care Consult: use of adjuncts

Prior to extubation
Consider increasing goal RASS.
Decrease fentaNYL and LORazepam PRNs by 50% and space frequency to every 4-6 hours
No PRNs for at least 4 hours prior to planned extubation.
Decrease or hold sedative infusions per APP, fellow or Attending MD.

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Clinical Guideline

Sedation - Morphine

Pediatric Intensive Care Unit

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Goal RASS _____
Low HR _____
Low BP _____

EXCLUSION CRITERIA: Allergy, MD request, severe acute neurologic disorder, epidural/PCA until d/c, ECMO, heart block

*** Exclude any sedation utilized for procedures in totals *** * If patient has low HR or BP, then discuss with provider.

Admission/ intubation through Hour 1

1. Load dexmedetomidine (DEXMED) 0.5-1 mcg/kg IV over 10 min (MAX 50 mcg) and start infusion at 0.4 mcg/kg/hr*
2. Bolus morphine 0.1 mg/kg (initial MAX: 4 mg/dose) IV every 15 minutes PRN to achieve goal RASS
3. If a morphine bolus is needed, consider starting morphine infusion
   < 60 kg: start morphine infusion at 0.05 mg/kg/hr
   ≥ 60 kg: start morphine infusion at 0.025 mg/kg/hr
4. If not at goal RASS at end of first hour, re-bolus DEXMED 1 mcg/kg over 10 min (MAX 50 mcg) and ↑ DEXMED infusion to 0.8 mcg/kg/hr*
5. Order scheduled or PRN acetaminophen or ibuprofen/ketorolac for fever or pain not associated with maintaining RASS

Hours 2 and 3

Goal RASS maintained?

yes

1. Continue current dose of DEXMED and/or morphine infusions
2. If needed, follow progression outlined in 1st hour

no

1. First, maximize progression outlined in 1st hour, then
2. Continue morphine 0.1 mg/kg (MAX 4 mg/dose) IV every 15 min PRN RASS > goal
3. If >3 boluses in 2 hrs, then ↑ morphine infusion by 0.01- 0.02 mg/kg/hr
4. For RASS not achieved with PRN morphine boluses, give LORazepam 0.1 mg/kg/dose IV (MAX initial 2 mg) ONCE

Hour 4 and every 4 hours after first 24 hours

Goal RASS maintained?

yes

1. Continue current dose of DEXMED and/or morphine infusions
2. Bolus DEXMED 0.5-1 mcg/kg over 10 min (MAX 50 mcg) every hour PRN pre-CARES*
3. Bolus morphine at hourly infusion dose every hour PRN RASS > goal, INITIAL

no

1. Bolus morphine at hourly infusion dose every hour PRN RASS > goal, INITIAL
2. If >3 PRNs in 4 hrs, ↑ morphine infusion by 0.01-0.02 mg/kg/hr
3. For RASS goal not achieved with PRN morphine, consider
   a. Re-bolus DEXMED 0.5-1 mcg/kg IV over 10 min (MAX 50 mcg) and ↑ DEXMED infusion by 0.2-0.5 mcg/kg/hr (up to 1 or 1.5 mcg/kg/hr)*; OR
   b. Add LORazepam 0.1 mg/kg/dose (MAX 2 mg) every 2-6 hrs PRN RASS > goal, REFRACTORY
4. Consider Palliative/Supportive Care consult: use of adjuncts

After the first 24 hours, reassess every 8 hours:
0800
1600
2400

Goal RASS consistently achieved?

no

yes

1. Continue infusions and PRN orders
2. If < 3 boluses of any kind given in 8 hours to meet RASS goal, then
   a. ↓ morphine by 0.01 mg/kg/hr at 0800 and 2400, and
   b. ↓ DEXMED by 0.2 mcg/kg/hr at 1600
   (do not include procedural or pre-CARES boluses in PRN counts)

Confirm that the ordered RASS goal range in the electronic medical record is current.

If DEXMED 1.5 mcg/kg/hr, morphine 0.5 mg/kg/hr, AND LORazepam 0.1 mg/kg/dose every 4 hours PRN RASS > goal is insufficient, "Guideline failure" reached.
Higher doses may be needed, but MD should be consulted for further strategy.
Consider Palliative/Supportive Care consult: use of adjuncts

Prior to extubation
Consider increasing goal RASS.
Decrease morphine and LORazepam PRNs by half and space frequency to every 4-6 hours
No PRNs for at least 4 hours prior to planned extubation.
Decrease or hold sedative infusions per APP, fellow or Attending MD.

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Sedation for Mechanical Ventilation Guideline Executive Summary

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