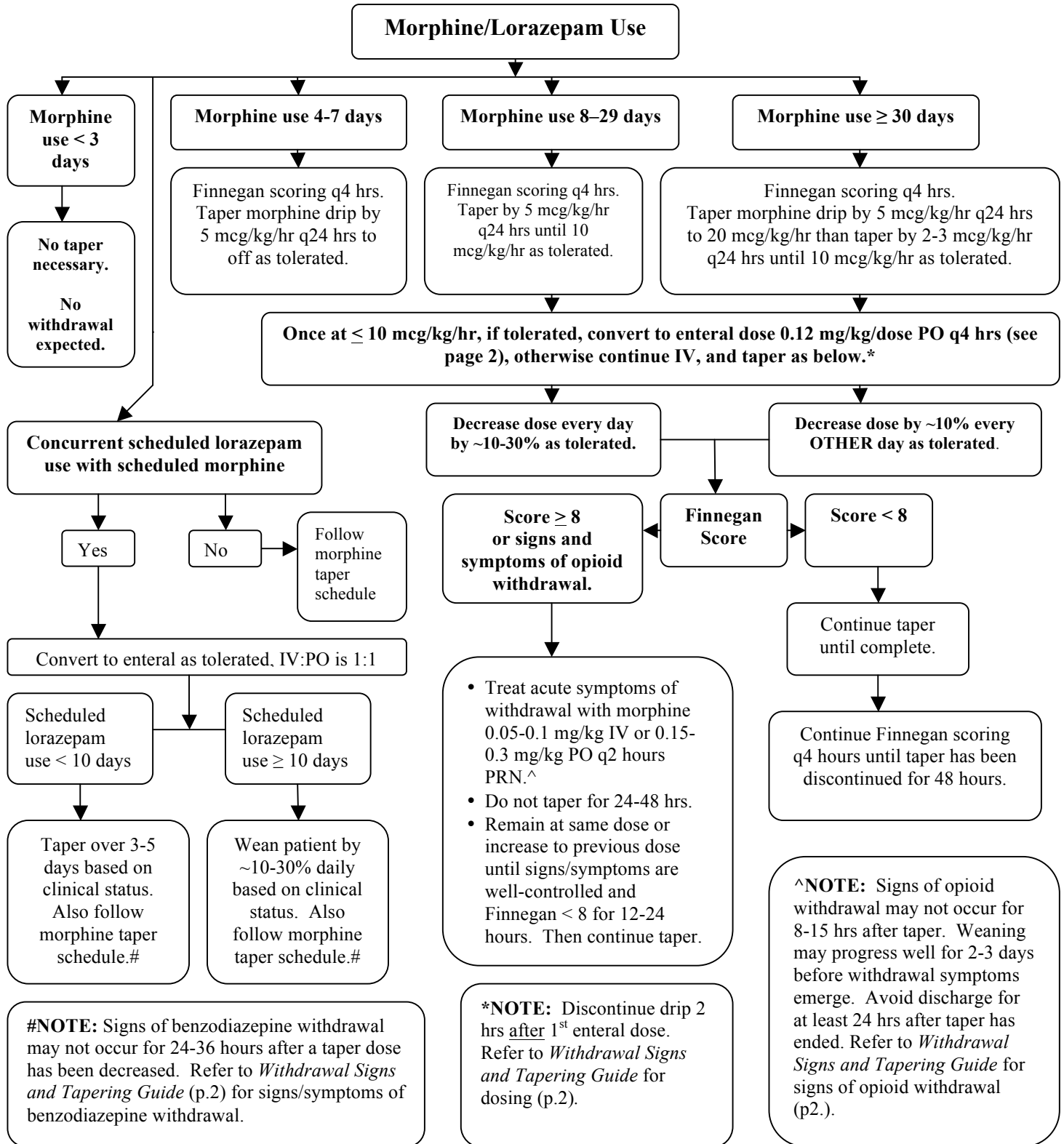


# Morphine and Lorazepam Tapering Guidelines in the NICU

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## Withdrawal Signs and Tapering Dose Guide

### WITHDRAWAL SIGNS

	Central Nervous Signs	Respiratory Signs	Gastrointestinal Signs	Vasomotor Signs	Cutaneous Signs
<b>Opioid Withdrawal Signs</b>	High-pitched crying Hyperactive reflexes Increased muscle tone Tremors Sneezing Hiccups Yawning Short, non-quiet sleep Fever Difficult to comfort	Tachypnea Excess secretions	Disorganized sucking Poor feeding Vomiting Drooling Diarrhea	Stuffy nose Flushing Sweating Mottling	Skin excoriation (knees, elbows, buttocks)
<b>Benzodiazepine Withdrawal Signs</b>	Hypertonicity Tremors Irritability		Disorganized sucking Vomiting Diarrhea		

### DOSE CONVERSION CALCULATIONS AND DOSE TAPERING GUIDE

#### **Conversion from IV to Enteral Morphine Dosing:**

Usual starting IV drip at time of conversion to PO: 10 mcg/kg/hr

Usual starting dosing interval for oral dosing: q4 hours (ie. 6 doses daily)

The dosing conversion used in the calculations for morphine IV:PO = 1:3

1. Calculate starting point for oral morphine dose from morphine drip  
 → ***Patient PO dosing weight MUST be the same weight that was initially used to calculate the drip and not necessarily their current daily weight.***

15 mcg/kg/hr IV drip = 0.18 mg/kg/dose PO q4 hours

12 mcg/kg/hr IV drip = 0.14 mg/kg/dose PO q4 hours

10 mcg/kg/hr IV drip = 0.12 mg/kg/dose PO q4 hours

8 mcg/kg/hr IV drip = 0.1 mg/kg/dose PO q4 hours

2. Find calculated STARTING oral morphine dose on the appropriate table below based on patient weight (using actual dose, not the mg/kg/dose) and follow the morphine taper schedule from that point.

Follow this chart for patients'  $\leq 2$  kg:

Morphine use 8-29 days decrease dose DAILY			Morphine use $\geq 30$ days decrease dose EVERY OTHER day		
Actual Dose	Frequency	% change from previous dose	Actual Dose	Frequency	% change from previous dose
0.7 mg PO	q4 hrs		0.7 mg PO	q4 hrs	
0.6 mg PO	q4 hrs	14 %	0.6 mg PO	q4 hrs	14 %
0.5 mg PO	q4 hrs	16 %	0.55 mg PO	q4 hrs	8 %
0.4 mg PO	q4 hrs	20 %	0.5 mg PO	q4 hrs	9 %
0.3 mg PO	q4 hrs	25 %	0.45 mg PO	q4 hrs	10 %
0.2 mg PO	q4 hrs	33 %	0.4 mg PO	q4 hrs	11 %
0.1 mg PO	q4 hrs	50%	0.35 mg PO	q4 hrs	12 %
0.1 mg PO	q6 hrs	33%	0.3 mg PO	q4 hrs	14 %
0.1 mg PO	q8 hrs	50 %	0.25 mg PO	q4 hrs	16 %
0.1 mg PO	q12 hrs	33 %	0.2 mg PO	q4 hrs	23%
0.1 mg PO	q24 hrs	50 %	0.2 mg PO	q6 hrs	33 %
<b>Taper Completed</b>			0.1 mg PO	q6 hrs	50 %
			0.1 mg PO	q8 hrs	25 %
			0.1 mg PO	q12 hrs	33 %
			0.1 mg PO	q24 hrs	50 %
			<b>Taper Completed</b>		

Follow this chart for patients'  $> 2$  kg:

Morphine use 8-29 days decrease dose DAILY			Morphine use $\geq 30$ days decrease dose EVERY OTHER day		
Actual Dose	Frequency	% change from previous dose	Actual Dose	Frequency	% change from previous dose
0.7 mg PO	q4 hrs		0.7 mg PO	q4 hrs	
0.6 mg PO	q4 hrs	14 %	0.6 mg PO	q4 hrs	14 %
0.5 mg PO	q4 hrs	16 %	0.55 mg PO	q4 hrs	8 %
0.4 mg PO	q4 hrs	20 %	0.5 mg PO	q4 hrs	9 %
0.3 mg PO	q4 hrs	25 %	0.45 mg PO	q4 hrs	10 %
0.2 mg PO	q4 hrs	33 %	0.4 mg PO	q4 hrs	11 %
0.2 mg PO	q6 hrs	33 %	0.35 mg PO	q4 hrs	12 %
0.2 mg PO	q8 hrs	25 %	0.3 mg PO	q4 hrs	14 %
0.2 mg PO	q12 hrs	33 %	0.25 mg PO	q4 hrs	16 %
0.2 mg PO	q24 hrs	50 %	0.2 mg PO	q4 hrs	23%
<b>Taper Completed</b>			0.2 mg PO	q6 hrs	33 %
			0.2 mg PO	q8 hrs	25 %
			0.2 mg PO	q12 hrs	33 %
			0.2 mg PO	q24 hrs	50 %
			<b>Taper Completed</b>		

## Finnegan Scoring System

System	Symptoms	Points	Score		
Central Nervous System	Excessive high pitched (or other) cry (< 5 min)	2			
	Continuous high pitched (or other) cry (> 5 min)	3			
	Sleep < 1 hour after feeding	3			
	Sleep < 2 hours after feeding	2			
	Sleep < 3 hours after feeding	1			
	Hyperactive Moro reflex	2			
	Moderately hyperactive Moro reflex	3			
	Mild tremors when disturbed	1			
	Moderate-severe tremors when disturbed	2			
	Mild tremors when undisturbed	3			
	Moderate-severe tremors when undisturbed	4			
	Increased muscle tone	1			
Metabolism Vasomotor Respiratory	Excoriation (eg. Chin, knees, elbows, toes, nose)	1			
	Myclonic jerks (twitching/jerking of limbs)	3			
	Generalized convulsions	5			
	Sweating	1			
	Hyperthermia (37.2 – 38.2°C)	1			
	Hyperthermia (≥ 38.4°C)	2			
	Frequent yawning (>3-4/interval)	1			
	Molting	1			
	Nasal stuffiness	1			
	Frequent sneezing (> 3-4/interval)	1			
Gastro-intestinal	Nasal flaring	2			
	Respiratory rate > 60/min	1			
	Respiratory rate > 60/min with retractions	2			
	Excessive sucking	1			
	Poor feeding (infrequent/uncoordinated suck)	2			
	Regurgitation (≥2 times during/past feed)	2			
TOTAL SCORE	Projectile vomiting	3			
	Loose stool	2			
	Watery stool	3			

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