Lucile Packard Children's Hospital Stanford

Pediatric Pain Pocket Reference

Card designed and compiled by the Stanford Pediatric Pain Service

Pediatric Pain Assessment Tools

FLACC Scale (Merkel, et al, 1997)
Validated in Children < 3 years and Children with Developmental Disabilities

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaws
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking, or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractable	Difficult to console or comfort

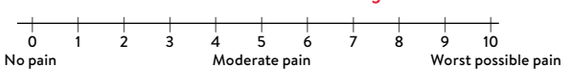
Each of the five categories (F) Face; (L) Legs; (A) Activity; (C) Cry; (C) Consolability is scored from 0–2, which results in a total score between 0–10. Validated for acute postoperative pain assessment in non-verbal children 3 months–18 years old. Consider pain medication intervention for score > 4 that does not respond to comfort measures.

FACES® Pain Scale — Revised (FPS-R)

www.iasp-pain.org/FPSR — Faces Pain Scale – Revised, ©2001, International Association for the Study of Pain

Used for children developmentally aged 3–6 years old. Consider pain intervention for score > 4 that does not respond to comfort measures.

0–10 Numeric Pain Rating Scale



To transfer a patient or make a consult, please call
Transfer Center | (877) GO-4-LPCH (464-5724)

med.stanford.edu/pedsanesthesia/pain-medicine

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Pediatric Adjuvant Rx Dosing Table (Recommended starting doses < 50kg)

Drug	Dose Range	Indication/Comments
ADJUVANTS		
Lorazepam	Typical: IV: 0.25-0.5mg q6hr Pain Service*: IV: 0.01mg/kg q6h	As needed or ATC for agitation/ anxiety, skeletal muscle spasm. *Helpful as adjunct to opioids for anxiety, myoclonus, nausea/vomiting
Diazepam	PO: 0.1mg/kg q8h	As needed for anxiety, skeletal muscle spasm. Typical starting dose 1-5mg PO q8h. Max 10mg PO q8h
Gabapentin	PO: 5-40mg/kg/day in 3 divided doses (children ≥3 years old)	Neuropathic pain and enhancement of opioid analgesia. Start low and titrate.
Amitriptyline	PO: Start 0.15mg/kg QHS; may advance over 2-3 weeks to 0.5-2mg/kg QHS	Indications: headache prophylaxis, IBS, neuropathic pain,. Can prolong QT interval. Check EKG if titrating above 0.5mg/kg
Nortriptyline	PO: Start 0.15mg/kg QHS; may advance over 2-3 weeks to 0.5-2mg/kg QHS	Indications: headache prophylaxis, IBS, neuropathic pain. Can prolong QT interval. Check EKG if titrating above 0.5mg/kg
REVERSAL AGENTS		
Naloxone	IM/IV: 0.001mg/kg	Opioid reversal. Start with low dose as listed to left and titrate to effect. Serial doses may be necessary as half-life of naloxone is shorter than half-life of most opioids. Continuous surveillance needed. Full dose will cause abrupt return of pain. Code doses of naloxone (much larger doses) may precipitate flash pulmonary edema in opioid dependent patients
Flumazenil	IV: 0.01mg/kg	Benzodiazepine reversal. Do not use in patients on long-term benzodiazepines, cyclosporine, INH, lithium, TCAs, theophylline, propoxyphene. Patients must be observed for resedation. Serious potential side effects include seizures, benzodiazepine withdrawal, and resedation

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Drug	Dose Range	Indication/Comments
SIDE EFFECT MANAGEMENT*		
Diphenhydramine	IV: 0.5mg/kg q6h	As needed for pruritus (not effective for opioid induced pruritus). Use ondansetron, nalbuphine or naloxone infusion for opioid induced pruritus
Nalbuphine	IV: 0.05mg/kg q4h	As needed for pruritus
Ondansetron	IV: 0.1mg/kg q6h	As needed for nausea/vomiting or pruritus
Metoclopramide	IV: 0.1mg/kg q6h	As needed for nausea/vomiting
Bisacodyl	PO/PR: 5mg daily (3-11yo); 10mg daily (>11yo)	As needed for constipation; no rectal medications for neutropenic patients
Docusate Sodium	PO: 50mg BID (6-12yo); 100mg BID (>12yo)	As needed for hard stools
Polyethylene Glycol 3350	PO: 4.25gm daily (<5yo); 8.5gm daily (5-12yo); 17gm daily (>12yo)	Scheduled or as needed for constipation; can be used up to QID (BID typical)
Senna	PO: ½ tab QHS (2-<6yo); 1 tab QHS (6-<12yo); 2 tab QHS (≥12yo)	Scheduled or as needed for constipation
Methylnaltrexone	SQ every other day: 0.15mg/kg (<38kg); 8mg (38-62kg); 12mg (62-114kg); 0.15mg/kg (>114 kg)	As needed for refractory constipation; do not use if mechanical bowel obstruction suspected

Additional options to consider for constipation refractory to above: glycerin suppository, fleet enema, milk of magnesia, magnesium citrate, lubiprostone

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Recommended Opioid Starting Doses

Drug	Dose Range	Onset (min)	Duration (min)	PCA Doses	Comments
Morphine	IV: 0.05-0.1mg/kg q2-4 hr PO: 0.3mg/kg q3-4 hr	IV: 5-10 PO: 15-20	IV/PO: 4-5	Basal: 0.005mg/kg/hr Demand: 0.01-0.03 mg/kg LO: 10 min	Avoid in renal impairment/failure Histamine release in large doses
Hydro-morphone	IV: 5-15mcg/kg q2-4 hr PO: 50-80mcg/kg q3-6 hr	IV: 5-10 PO: 15-20	IV: 3-4 PO: 4-6	Basal: 1mcg/kg/hr Demand: 2-6mcg/kg LO: 8 min	Always start with the lowest effective dose and titrate
Oxycodone	PO: 0.1-0.15mg/kg q4-6 hr	PO: 30-60	PO: 4-6	N/A	When using acetaminophen/oxycodone (e.g., Percocet) calculate acetaminophen dose
Hydro-codone	PO: 0.15mg/kg q4-6 hr	PO: 30-60	PO: 4-5	N/A	When using acetaminophen/oxycodone (e.g., Percocet) calculate total daily acetaminophen dose (e.g., Vicodin, Norco, Lortab, Lorcet, Hycet)
Fentanyl	IV: 0.5-1mcg/kg q30-60 min	2-3	½-1	Basal: 0.1mcg/kg/hr Demand: 0.2-0.3mcg/kg LO: 6 min	Fentanyl transdermal contraindicated in opioid naïve patients
Meperidine	IV: 0.5-1mg/kg/dose			N/A	Not used for children's analgesia: active metabolite normeperidine accumulates and causes CNS activation and seizures
Methadone	By conversion only; consult pain service	4-6 hrs	IV: 4-8 PO: 4-12	N/A	Variable half-life: 18-24hrs; slow titration advised. May prolong QTc

* In patients with a true allergy to a particular opioid, a product from another class should be chosen
**PCA/NCA/CCA = patient controlled analgesia/nurse controlled analgesia/caregiver controlled analgesia

Pediatric Non-Opioid Analgesic Dosing Table (Starting doses < 50kg)

Drug	Dose Range	Indication/Comments
NON-OPIOID ANALGESICS		
Acetaminophen	See acetaminophen table	See acetaminophen table
NSAIDS		
Ketorolac	IM/IV: 0.5-1mg/kg (initial dose), then 0.5mg/kg q6h x 5 days max	Possible renal, cardiac, GI adverse effects. Do not use in renal and hepatic impairment Risk of interstitial nephritis. Associated with gastritis, platelet inhibition and inhibition of new bone growth. Recommend: confirm normal platelet count, creatinine, urine output, and confirm surgical ok before starting. Do not use in pediatric patients < 2 years old
Ibuprofen	PO: 10mg/kg q8hr (max 40mg/kg/day)	
Naproxen	PO: 5mg/kg q8-12hr (max 15mg/kg/day)	
Celecoxib	PO: 1-2mg/kg BID	Do not use in renal and hepatic impairment. Risk of interstitial nephritis. Associated with inhibition of new bone growth but not gastritis or platelet inhibition.

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Opioid Conversion Chart

Equianalgesic dose refers to the amount of opioid equivalent to 10mg IV morphine. To convert between opioids determine the morphine equivalent of the first drug. Then convert the morphine equivalent dose to the new drug utilizing the table.

* Do not administer IM unless no IV access due to pain with administration and variable absorption time.

** Fentanyl transdermal patches, transmucosal lozenges and sublingual spray are restricted by FDA to opioid tolerant patients ≥ 2 years old.

*** A good online resource to help with opioid conversion (which takes into consideration incomplete cross tolerance): http://opioidcalculator.practicalpainmanagement.com

Drug	Equianalgesic Dose (mg unless specified)	
	SC/IM*/IV	PO
Morphine	10	30
Hydromorphone	1–5	6–7.5
Fentanyl	100mCg acute/single dose, 15mCg chronic	**
Oxycodone	Not Available	20
Methadone	See conversion tools***	
Hydrocodone	Not Available	20
Oxymorphone	Not Available	10
Meperidine**	100	300

**** Meperidine is not used for analgesia due to accumulation of metabolite normeperidine with repeated doses, which causes hallucinations & seizures.

Always check CURES prior to prescribing controlled substances:
https://oag.ca.gov/cures
https://cures.doj.ca/gov

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Local Anesthesia Dosing

Local Anesthetic Max Doses		
	MAX BOLUS DOSE	MAX INFUSION RATE
Ropivacaine*	<2mon: 4mg/kg	<2mon: 0.3mg/kg/hr
	>2mon 5mg/kg	>2mon: 0.6 mg/kg/hr
Bupivacaine	<2mon: 2.5mg/kg	<2mon: 0.25mg/kg/hr
	>2mon 3mg/kg	>2mon: 0.5 mg/kg/hr
Lidocaine	>1yo: 4.5mg/kg; 7mg/kg (with epi)	>1yo: 2mg/kg/hr
Chloroprocaine**	10–12mg/kg	10–15mg/kg/hr

* Ropivacaine is less cardiotoxic than bupivacaine at equivalent doses and results in less motor block

**Chloroprocaine has very rapid metabolism

Note: To convert % concentration to mg/kg multiply by 10: For example, 0.1% Bupivacaine = 1mg/ml Bupivacaine

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Pediatric Acetaminophen Dosing Table

Route	Age (weeks PCA)	Dose	Max Daily Dose
IV	28-32	7.5mg/kg q8h	22.5mg/kg/day
	33-36	7.5mg/kg q6h or 10mg/kg q 8h	40mg/kg/day
	37-44	10mg/kg q6h	40mg/kg/day
	> 44	15mg/kg q6h	60mg/kg/day
PO	28-32	10-12mg/kg q6h	40mg/kg/day
	> 33	15mg/kg q6h	60mg/kg/day
PR	28-32	20mg/kg q12h	40mg/kg/day
	> 33	20mg/kg q8h	60mg/kg/day

* PR acetaminophen restricted to patients who are NPO and/or vomiting *with no IV access*

DRAFT 036562_Pediatric Pain Pocket Reference_2019-11-13_D4

Safe Medication Use, Storage and Disposal: PILLS

P	**Prescribe less**—think about the nature of the injury, consider lower initial amounts
I	**Inform families/patients**—stress the dangers of opioids
L	**Lock them up**—lock up all medications away from children and other family members
L	**Local resources**—find locations that are approved by the US Drug Enforcement Agency to take back controlled and other medications www.dontrushtoflush.org
S	**Safely dispose**—If no local resources exist, follow FDA guidelines for safe disposal

Don't Rush To Flush is a great resource for California with the most up-to-date information on Take Back resources for all medications including controlled substances, and other safe disposal methods. www.dontrushtoflush.org