GOLISANO
CHILDREN'S HOSPITAL

Pediatric Pain Reference Cards

UNIVERSITY of ROCHESTER
MEDICAL CENTER

MEDICINE of THE HIGHEST ORDER

Pediatric Pain Subcommittee
University of Rochester

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SMH 1398 (Rev.5/09)

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Golisano Children's Hospital at Strong
Pediatric Acute Pain Algorithm

(See Pain Manual for NICU and Newborn Pain Protocols)

ASSESSMENT

1. Previous pain history and management including nonpharmacologic and pharmacologic interventions
2. Current pain complaint: Onset, location, duration, intensity, temporal pattern, aggravating factors, alleviating factors
3. Current pain medications/other medications
4. Contributing factors, e.g. course of disease, anxiety/fears, development, temperament, age
5. Risk factors, e.g. airway stability, disease process
6. Allergies/Sensitivities

Assess pain using developmentally appropriate pain scale and obtain pain rating (0 - 10)

NONPHARMACOLOGIC OPTIONS

- **Physical Strategies:** positioning, reduction of stimuli (noise control, dim lights, group care to decrease # of interactions); application of heat or cold; massage; swaddling; sucrose pacifier.
- **Cognitive Strategies:** reassurance; play, music, visual aids.
- **Parental/Caregiver Support:** Encourage parent/caregiver to provide comfort and emotional support (especially during procedures).
- **Child Life Specialist** for consultation to assist with coping strategies and/or diversional activities.
- **Psychological Evaluation** for patients with complex pain issues.

PHARMACOLOGIC OPTIONS *(See Pain Manual for further dosing recommendations)*

MILD PAIN (1-3)	MODERATE PAIN (4-7)	SEVERE PAIN (8-10)

• Acetaminophen PO/PR
• Ibuprofen PO
• Morphine (Starting dose: 0.025 mg/kg/dose) IV (for patients unable to have PO/PR meds)
	• Ketorolac PO/ IV (>1 year/age) - d/c oral NSAIDS
	• Codeine PO
	• Oxycodone PO
	• Hydrocodone/ Acetaminophen PO (d/c Acetaminophen)
	• Morphine (PO - immediate release)
	• Hydromorphone PO
	• Morphine IV (Starting dose: 0.05 mg/kg/dose or 0.02 mg/kg/hour)
	• Morphine PCA (if age appropriate)
	• Hydromorphone IV
		• Morphine IV (starting doses)
		  • interval dosing (0.1 mg/kg/dose)
		  • continuous dosing (0.05 - 0.1 mg/kg/hr)
		• Morphine PCA (add basal rate or increase total mg/hr)
		• Hydromorphone IV or PCA
		• Fentanyl IV or PCA (consider Anesthesia Pain Service Consult)
		• Anesthesia Pain Service Consult

Add NSAIDS and/or Acetaminophen, round the clock, in combination with any of the above medications, if not contraindicated

Reassess at appropriate intervals

GUIDELINES

1. **Use Pain/Sedation Resource Manual for all analgesic/sedative dosing.**
2. Evaluate pain on all patients using a 0 - 10 scale
   A. Mild pain: 1 - 3
   B. Moderate pain: 4 - 7
   C. Severe pain: 8 - 10
3. For chronic moderate or severe pain:
   A. Give baseline medication around the clock
   B. For breakthrough pain:
      - Continuous IV infusion: start at 50% of hourly dose and administer q 30-60 minutes. Dosing q 15 minutes may be necessary for some patients.
      - Intermittent IV dosing: 10% of total daily dose q 30-60 minutes.
      - Oral: 10% of total daily dose as a PRN given q 1-2 hours.

   C. Adjust baseline upward daily in amount roughly equivalent to total amount of PRN
   D. Negotiate with patient target level of relief, but usually at least achieving level < 4.
4. In general, oral route is simplest/preferable, then transcutaneous > subcutaneous > intravenous. Determine route as appropriate for situation/acuity and type of pain.
5. When converting from one opioid to another, some experts recommend reducing the equianalgesic dose by 1/3 to 1/2, then titrate as in #3 above.
6. Infants < 6 months or those with severe renal or liver disease, should start on 1/4 to 1/2 the usual starting dose.
7. If parenteral medication is needed for mild pain, use half the usual starting dose of morphine or equivalent.
8. Naloxone (Narcan) should only be used in emergencies:
   - Dilute naloxone (0.4 mg/ml) 0.1 mg (0.25 ml) with 9.75 ml NS (final strength 10.0 mcg/ml)
   - Start 2.0 mcg/kg, repeat q 2 minutes for total of 10 mcg/kg.
   - Monitor patient q 15 minutes
   - May need to repeat again in 30-60 minutes
9. Short-acting preparations should be used acutely & post-op. Switch to long-acting preparations when pain is chronic and the total daily dose is determined.
10. When administering opioids:
    - Infants < 6 months: place on apnea/bradycardia monitor and/or pulse oximeter
    - Infants/children 6 months - 24 months, place on pulse oximeter (also consider for children with developmental disabilities, h/o prematurity and known respiratory difficulties).

Information adapted from *Facts and Comparisons 1997* and *APS Principles of Analgesic Use in the Treatment of Acute Pain* and *Cancer Pain (4th Ed.) 1999.*

Pediatric Pain Rating Scales

Premature Infant Pain Profile (PIPP) *(Stevens, et al, 1996)*

	Process	Indicator	0	1	2	3
Modifying Factors	Chart	Gestational Age (at time of observation)	36 wks and more	32 wks to 35 6/7 wks	28 wks to 31 6/7 wks	Less than 28 wks
	Observe Infant 15 sec Observe baseline Heart Rate Oxygen Saturation	Behavioral State	Active/ Awake Eyes open Facial movements	Quiet/ Awake Eyes open No facial movements	Active/ Sleep Eyes Closed Facial movements	Quiet/ Sleep Eyes Closed No facial movements
Behavioral/Physiologic Factors	Observe Infant 30 sec	Heart Rate Max	0-4 beats/min increase	5-14 beats/min increase	15-24 beats/min increase	25 beats/min or more increase
		Oxygen Sat Min	1.9% decrease	2-4% decrease	5-7% decrease	Greater than 8% decrease
		Brow bulge	None	Minimum	Moderate	Maximum
		Eye Squeeze	None	Minimum	Moderate	Maximum
		Nasolabial Furrow	None	Minimum	Moderate	Maximum

PIPP Pain Assessment Score and Treatment

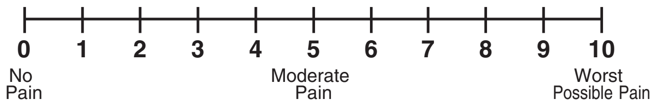
Score	0-6	7-12	13-21
Therapy	Employ non-pharmacologic measures	Consider non-narcotic analgesia and/or Employ non-pharmacologic measures	Treat with narcotic analgesia and/or Employ non-pharmacologic measures

Revised FLACC Scale *(Merkel, et al, 1997; Malviya, e.t., al., 2006)*
Children ≤ 6 years and Children with Developmental Disabilities

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested, sad, appears worried	Frequent to constant quivering chin, clenched jaws, distressed looking face, expression of fright/panic
Legs	Normal position or relaxed, usual tone & motion to limbs	Uneasy, restless, tense, occasional tremors	Kicking, or legs drawn up, marked increase in spasticity, constant tremors, jerking
Activity	Lying quietly; normal position; moves easily; regular, rhythmic respirations	Squirming, shifting back and forth, tense, tense/guarded movements, mildly agitated, shallow/splingting respirations, intermittent sighs	Arched, rigid or jerking, severe agitation, head banging, shivering, breath holding, gasping, severe splinting
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint, occasional verbal outbursts, constant grunting	Crying steadily, screams or sobs, frequent complaints, repeated outbursts, constant grunting
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort, pushing caregiver away, resisting care or comfort measures

- 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 zero and ten.
- Document the total score by adding numbers from each of the five categories.

Numeric Scale
Teenagers and Young Adults



FACES Pain Scale – Revised (FPS-R)

In the following instructions, say "hurt" or "pain," whichever seems right for a particular child.

"These faces show how much something can hurt. This face *[point to left-most face]* **shows no pain. The faces show more and more pain** *[point to each from left to right]* **up to this one** *[point to right-most face]* **– it shows very much pain. Point to the face that shows how much you hurt** [right now]**."**

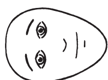
Score the chosen face 0, 2, 4, 6, 8, or 10, counting left to right, so '0' = 'no pain' and '10' = 'very much pain.' Do not use words like 'happy' and 'sad'. This scale is intended to measure how children feel inside, not how their face looks.

Instructions for administering the *Faces Pain Scale – Revised* in languages other than English may be obtained at:
http://painsourcebook.ca/pdfs/fps-r-multilngual-instructions-aug07.pdf

Permission for use. Copyright in the FPS-R is held by the International Association for the Study of Pain (IASP) © 2001.

Sources. Hicks CL, von Baeyer CL, Spafford P, van Korlaar I, Goodenough B. The Faces Pain Scale – Revised: Toward a common metric in pediatric pain measurement. *Pain* 2001;93:173-183.

From *Pediatric Pain Sourcebook,* **www.painsourcebook.ca**



MEDICATION	EQUIANALGESIC DOSE (for chronic dosing)	
	IM/IV **onset 15-30 min**	**PO** **onset 30-60 min**
MORPHINE	10 mg	30 mg
OXYCODONE	Not Available	20 mg
HYDROMORPHONE (Dilaudid)	1.5 mg	7.5 mg
METHADONE	10 mg	24 hr Oral Morphine — Oral Morphine: Methadone Ratio <30 mg — 2:1 31-99 mg — 4:1 100-299 mg — 8:1 300-499 mg — 12:1 500-999 mg — 15:1 1000-1200 mg — 20:1
FENTANYL	100 mcg (single dose) 200 mcg (cont infusion)	24 hr oral MS dose — Initial Patch 45 mg — 12 ug/hr 90 mg — 25 ug/hr 180 mg — 50 ug/hr 360 mg — 100 ug/hr
CODEINE (Tylenol #3)	120 mg (IM only)	200 mg
HYDROCODONE (Vicodin, Lortab)	Not Available	30 mg

MED	USUAL STARTING DOSES Pediatric patients < 40 kg		COMMENTS (Not all dosage forms are available for inpatients. Consult unit pharmacist or CIS for availability)	PAIN
	PARENTERAL	PO		
MORPHINE	Infant = 0.05-0.1 mg/kg/dose Child = 0.1-0.2 mg/kg/dose (Both given q 2-4 hours)	IR = 0.2-0.5 mg/kg/dose q 4-6 hrs CR = 0.3-0.6 mg/kg/dose q 8-12 hrs	Oral sol. (2 mg/ml); Conc. (20 mg/ml) can be given buccally. MSIR (Morphine Immediate-Release tablets - 15, 30 mg) Morphine sustained-release (15, 30, 60, 100, 200 mg) q 12 hrs. Use cautiously in severe renal disease. Dose may need to be decreased or interval increased.	MODERATE TO SEVERE
OXY-CODONE	Not Available	0.05-0.15 mg/kg/dose q 4-6 hrs	Oxy IR (Oxycodone Immediate-Release tablets - 5 mg). Oxycodone sustained-release (10, 20, 40, 80 mg) q 12 hrs. Percocet (oxycodone/acetaminophen - Schedule III): 2.5/325, 5/325, 7.5/500, 10/650 mg). Monitor total acetaminophen dose. (For children <40 kg, 15 mg/kg/dose with maximum 1000 mg/dose; for >40 kg, maximum 1000 mg/dose and 4000 mg/day).	MODERATE TO SEVERE
HYDRO-MORPHONE	0.015 mg/kg/dose q 3-6 hrs	0.03 - 0.08 mg/kg/dose q 3-6 hrs.	Tablets (2, 4, 8 mg) Oral liquid (5 mg/5 ml) Preferred for patients with renal disease	MODERATE TO SEVERE
METHA-DONE	Limited availability	Consult Pediatric Critical Care or Anesthesia Pain Service	Inexpensive. May help with myoclonus. Variable duration between individuals. Start doses q 6-12 hrs. and increase gradually. May accumulate with repetitive dosing (Days 2-5). Maximum dose 10 mg/dose. **Conversion doses complex - consult Palliative Care or Anesthesia Pain Service.**	MODERATE TO SEVERE
FENTANYL	0.5-2 mcg/kg/dose q 30-60 minutes	25 mcg/hr q 72 hrs. (Transdermal) (◆ *Not recommended for opioid naïve)*	IV: very short acting; associated with chest wall rigidity. Transdermal: See PDR for details of dose transition; include short-acting supplement for breakthrough pain; 12-hour delay onset and offset with patch.	MODERATE TO SEVERE
CODEINE	IM dosing not recommended IV dosing contraindicated	0.5-1.0 mg/kg/dose q 3-6 hrs.	Codeine alone - Schedule II prescription, all others Sched III. Tylenol #3 (codeine 30 mg w/ acetaminophen 300 mg). Tylenol #4 (codeine 60 mg w/ acetaminophen 300 mg). Tylenol w/codeine sol. (codeine 12 mg w/acet. 120 mg/5 ml). Monitor total acetaminophen dose. (For children <40 kg, 15 mg/kg/dose with maximum 1000 mg/dose; for > 40 kg, maximum 1000 mg/dose and 4000 mg/day).	MILD TO MODERATE
HYDRO-CODONE	Not Available	0.2 mg/kg/dose q 4-6 hrs.	Vicodin (hydrocodone/acetaminophen: 5/500 mg). Vicoprofen (hydrocodone/ibuprofen: 7.5 /200 mg). Lortab (hydrocodone/acet.: 2.5/500; 5/500; 7.5/500 mg). Norco (hydrocodone/acetaminophen: 10/325 mg). Monitor total acetaminophen dose. (For children <40 kg, 15 mg/kg/dose with maximum 1000 mg/dose; for > 40 kg, maximum 1000 mg/dose and 4000 mg/day).	MILD TO MODERATE