# PRINCIPLES OF PAIN MANAGEMENT: PEDIATRIC GUIDE

## Assessment and Diagnosis

While all patients should be screened for pain, identifying a specific etiology for pain is challenging. A complete assessment, including physical, mental, emotional, and spiritual components is helpful in determining the appropriate course of management. All patients and families, where appropriate, should be actively engaged in self-management of their pain.

### History: Assess

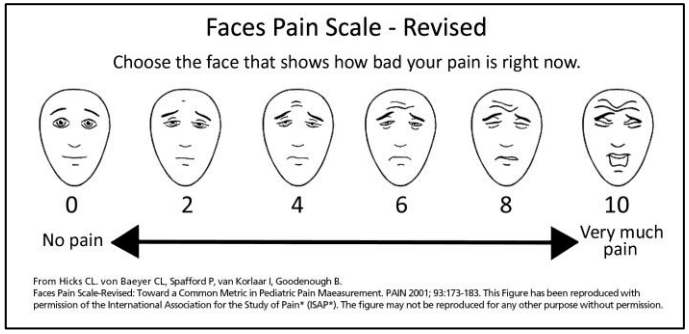
- Onset, location, quality, intensity, temporal pattern, aggravating and alleviating factors, associated symptoms
- Characteristics of pain; previous methods of treatment
- Other medical and surgical conditions.• Substance use

### Psychosocial History: Assess

- Depression, anxiety, PTSD, sleep pattern, suicide risk
- Impact on quality of life, ADLs & performance status
- Patient, family, and caregiver's cultural and spiritual beliefs
- Secondary gain: psychosocial/financial

### Assessment

- Order and evaluate appropriate diagnostic testing
- Evaluate pain on all patients using the age/developmentally appropriate scale:
  1. Numeric scale & FPS-R: Adolescents and older children
     - A. mild pain: 1-3
     - B. moderate: 4-7 (interferes with work or sleep)
     - C. severe: 8-10 (interferes with all activities)
  2. Faces Pain Scale-Revised (FPS-R): Younger children (~6-10 years old)
  3. FLACC-revised scale: <6 years old/developmentally delayed
  4. NIPS: Neonatal Infant Pain Score



From Hicks CL. von Baeyer CL, Spafford P, van Korlaar I, Goodenough B.
Faces Pain Scale-Revised: Toward a Common Metric in Pediatric Pain Maeasurement. PAIN 2001; 93:173-183. This Figure has been reproduced with permission of the International Association for the Study of Pain* (ISAP*). The figure may not be reproduced for any other purpose without permission.

### Diagnostic Terms

Somatic pain: localized; ache, throb, or gnaw
Visceral pain: often referred; cramp, pressure, deep ache, squeeze
Neuropathic pain: burns, electric shock, hot, stab, numb, itch, tingle
Acute Pain: ↑HR, HBP, diaphoresis, pallor, fear, anxiety
Chronic pain: sleep difficulties, loss of appetite, psychomotor retardation, depression, career/relationship change

## Treatment

### Goals

- Treat acute pain aggressively to avoid chronic pain
- Treat chronic pain thoughtfully and systematically
- Identify and address the cause of pain
- Maintain alertness, ability to function safely/productively
- Allow emergence of feelings other than pain
- Intervene as noninvasively as possible
- Negotiate target with patient/family

### Non-Pharmacological Therapy

- Patient/Family Education (Consider Child life)
- Community & Web-based Support Groups
- Cognitive Behavioral Therapy; Supportive Psychotherapy
- Physical Therapy; Chiropractic/Osteopathic Care; Massage
- Exercise: Yoga, Tai Chi, Qi Gong, Walking, Water Therapy
- Cutaneous Stimulation: Ice, Heat; Counterstimulation: TENS
- Acupuncture & Acupressure (trigger point Rx)
- Relaxation techniques: Biofeedback, Music, Hydrobath, Reiki, Therapeutic Touch, Healing Touch
- Meditation, Mindful Practice, Visualization/Interactive Guided Imagery; Prayer; Spiritual & Pastoral Support

### Pharmacologic Therapy

- Nonpharmacologic therapy and nonopioid pharmacologic therapy are preferred for treatment of pain.
- For neuropathic pain, use anti-epilepsy drugs (AEDs) first
- Use adjuvant therapies or analgesics as needed
- Opioids are not first line for chronic pain, which should be managed with an active approach and non-opioid pain relievers, if possible.
- Consider opioid therapy based on a careful risk assessment that determines the expected benefits for both pain & function are anticipated to outweigh risks. If opioids are used, establish treatment goals, combine w/active approach & nonopioid analgesics as indicated.
- When opioids are indicated (e.g. patients with cancer, post-trauma, palliative and end-of-life care), combine with an active approach & adjuvant medications as indicated. See Opioid Guidelines on Equianalgesic Table for Children.
- Avoid inappropriate use of opioids; prevents potential misuse
- Older children and adolescents are not immune to opioid dependence, addiction, abuse and experimentation. Opioids are often prescribed for acute sports injuries and other trauma: the lowest possible doses and briefest duration of therapy should be used to minimize risk of dependence and addiction. See Adult Guide & key recommendations on page 1.

## Management and Monitoring

### General

- Reassess regularly
- Assess pain using tools (i.e. numeric scale, face scale); respond urgently to pain ≥8
- Follow amount and duration of response
- Assess performance status
- Partner with patient/family in setting goals of care
- Balance function vs. complete absence of pain

### Referrals and Management

*Acute pain*

- Refer early to appropriate specialist or Pain Center, if diagnosis unclear or pain refractory to treatment

*Chronic pain*

- Set realistic chronic care goals
- Transition from passive recipient to patient-directed management of therapies where appropriate
- Refer "difficult to treat" cases (H/O substance abuse, neuropathic pain, rapidly escalating opioid doses) to MD with palliative care or pain expertise

*Neuropathic pain*

- Use anti-epilepsy drugs (AEDs) first
- Use step 2 drug to help Rx

### Special Situations

*Anxiety and depression*

- Refer to Depression Guidelines

*Verbally non-communicative patients*

- Infants, children & cognitively impaired all feel pain
- Evaluate patient's non-specific signs: noisy breathing, grinding teeth, bracing, rubbing, crying, agitation

*Infants (use appropriate pain scale)*

- Start at ¼ - ½ usual dose
- Watch carefully for toxicity from accumulation

*Patients with substance abuse history*

- May need higher starting dose (tolerance)
- Use prescribing contracts for outpatient use
- Consider abuse-deterrent formulations

*Be aware of potential for addiction and misuse*

- Encourage established functional goals
- Ensure follow-up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## QUEST Principles of Pain Assessment[1]

- Question the child
- Use pain rating scales
- Evaluate behavior and physiological changes
- Secure parent's involvement
- Take cause of pain into account
- Take action and evaluate results

## Neonates[2]

| Signs of Acute Pain | Signs of Chronic Pain |
|---|---|
| Crying and moaning | Apathy |
| Muscle rigidity | Irritability |
| Flexion or flailing of the extremities | Changes in sleeping and eating patterns |
| Diaphoresis | Lack of interest in their surroundings |
| Irritability | |
| Guarding | |
| Changes in vital signs and pupillary dilatation | |

## Older Children

- Children < 6 years old or unable to communicate, clinicians should use the FLACC-revised scale
- Children >~6-10 may use the Faces (FPS-R) scale
- Children over 5 may be able to use descriptor words (stinging, burning)[2]
- Children over 6, who understand the concepts of rank and order, can use scales[2]

## Categories of Pain[3]

*Procedure-Related Pain*

- Anticipation of intensity, duration, coping style and temperament child, type of procedure, history of pain and family support system

*Operative Pain and Trauma-Associated Pain*

- Postoperative pain management should be discussed prior to surgery
- Control pain as rapidly as possible

*Acute Illness*

- Determine severity of pain by the particular illness and situation

## Pharmacological Therapy[2]

- Oral or IV administration of pain medication is the preferred method.
- Avoid painful IM injections.
- The initial choice of analgesic should be based on the severity and type of pain (see table below).
- IV Opioids can be safely titrated to effect in the pediatric inpatient setting
- For older children PCA is an acceptable form of administering pain medication with proper patient and family education.

## Pharmacologic therapy is based on severity of pain:

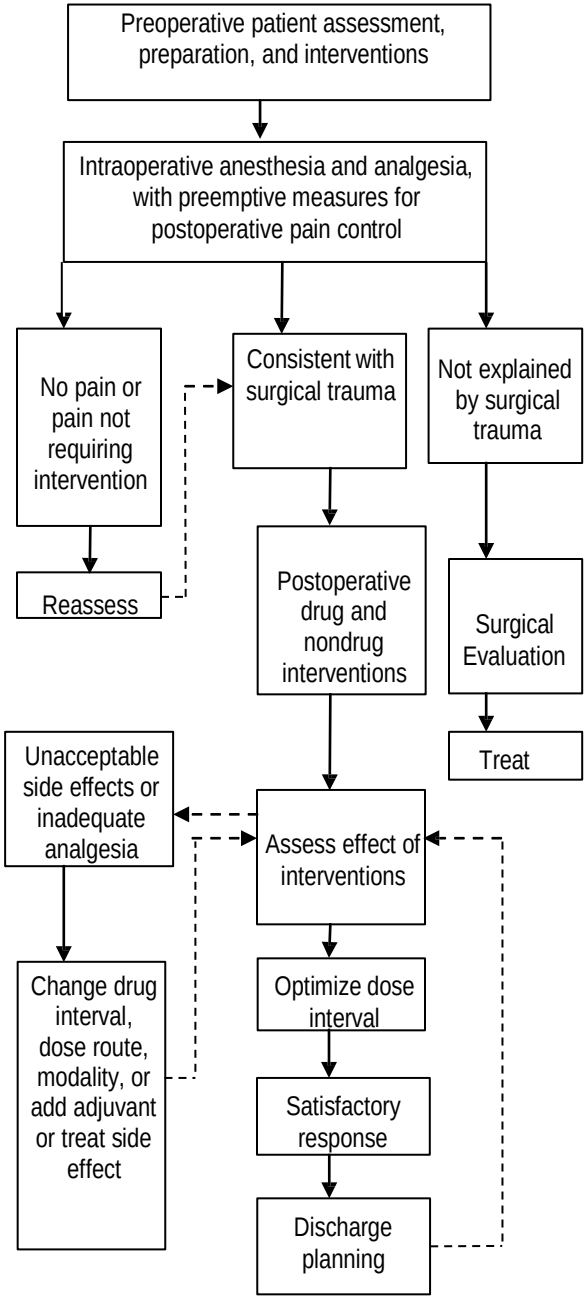
| Pain Severity | Analgesic Choice | Examples |
|---|---|---|
| Mild (pain score 1-3) | Acetaminophen*(APAP) or NSAID** | Tylenol®, Ibuprofen, Naproxen |
| Moderate (pain score 4-7) | PO APAP/opioid combinations IV/PO low dose MSO4 | Toradol®, Vicodin®, Tylox® |
| Severe (pain score 8-10) | Opioid | Morphine, Fentanyl®, Hydromorphone |

| Drug | Oral Dose | |
|---|---|---|
| Mild Pain | Children | Adolescents |
| Ibuprofen** | 5-10 mg/kg | 400-600 mg q6 hrs prn |
| Acetaminophen (APAP)* | 10-15 mg/kg | 300-600 mg q4-6 hrs prn |
| Use APAP* or ibuprofen** to enhance analgesia | | |
| Moderate or Severe Pain | Children & Adolescents | |
| Morphine | 0.15-0.3 mg/kg/dose q3-4 hrs | |
| Hydromorphone | 0.03-0.06 mg/kg/dose q3-4 hrs | |
| Oxycodone | 0.1-0.2 mg/kg/dose q3-4 hrs | |

*Daily dosing of Acetaminophen not to exceed 15 mg/kg/dose or 5 doses per day (75 mg/kg/24 hrs) in children <40 kg and 3000 mg/24 hrs in adolescents ≥40 kg.

**NSAIDs – monitor in patients on anticoagulation therapy and/or history of bleeding disorder; limit use ≤5 days.

## Operative Pain Management





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