### 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

#### Treatment

<table>
<thead>
<tr>
<th>Goals</th>
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<tbody>
<tr>
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<tr>
<td>• Treat chronic pain thoughtfully and systematically</td>
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#### Non-Pharmacologic 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.

<table>
<thead>
<tr>
<th>Management and Monitoring</th>
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<tbody>
<tr>
<td><strong>General</strong></td>
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</tr>
<tr>
<td>• Reassess regularly</td>
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<tr>
<td>• Assess pain using tools (i.e. numeric scale, face scale); respond urgently to pain ≥8</td>
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<tr>
<td>• Follow amount and duration of response</td>
<td></td>
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<tr>
<td>• Assess performance status</td>
<td></td>
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<tr>
<td>• Partner with patient/family in setting goals of care</td>
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<tr>
<td>• Balance function vs. complete absence of pain</td>
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#### 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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**Diagnostic Terms**

- Somatic pain: localized; ache, throbbing, 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

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**Goals**

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- Treat chronic pain thoughtfully and systematically
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**Guidelines and principles are intended to be flexible. They serve as reference points or recommendations, not rigid criteria. Guidelines and principles should be followed in most cases, but there is an understanding that, depending on the patient, the setting, the circumstances, or other factors, care can and should be tailored to fit individual needs.**

Approved in June 2019; Next Scheduled Update in 2021
QUEST Principles of Pain Assessment

- 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


<table>
<thead>
<tr>
<th>Signs of Acute Pain</th>
<th>Signs of Chronic Pain</th>
</tr>
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<tbody>
<tr>
<td>Crying and moaning</td>
<td>Apathy</td>
</tr>
<tr>
<td>Muscle rigidity</td>
<td>Irritability</td>
</tr>
<tr>
<td>Flexion or flailing of the extremities</td>
<td>Changes in sleeping and eating patterns</td>
</tr>
<tr>
<td>Diaphoresis</td>
<td>Lack of interest in their surroundings</td>
</tr>
<tr>
<td>Irritability</td>
<td>Guarding</td>
</tr>
<tr>
<td>Changes in vital signs and pupillary dilatation</td>
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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)
- Children over 6, who understand the concepts of rank and order, can use scales

Categories of Pain

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

- 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:

<table>
<thead>
<tr>
<th>Pain Severity</th>
<th>Analgesic Choice</th>
<th>Examples</th>
</tr>
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<tbody>
<tr>
<td>Mild (pain score 1-3)</td>
<td>Acetaminophen*(APAP) or NSAID**</td>
<td>TYLENOL®, IBUPROFEN, NAPROXEN</td>
</tr>
<tr>
<td>Moderate (pain score 4-7)</td>
<td>PO APAP/opioid combinations</td>
<td>IV/PO low dose MSO4</td>
</tr>
<tr>
<td>Severe (pain score 8-10)</td>
<td>Opioid</td>
<td>MORPHINE, FENTANYL®, HYDROMORPHONE</td>
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*Use APAP* or ibuprofen** to enhance analgesia

<table>
<thead>
<tr>
<th>Drug</th>
<th>Oral Dose</th>
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<tbody>
<tr>
<td>Mild Pain</td>
<td></td>
</tr>
<tr>
<td>Ibuprofen**</td>
<td>5-10 mg/kg</td>
</tr>
<tr>
<td>Acetaminophen (APAP)*</td>
<td>10-15 mg/kg</td>
</tr>
<tr>
<td>Moderate or Severe Pain</td>
<td>Children &amp; Adolescents</td>
</tr>
<tr>
<td>Morphine</td>
<td>0.03-0.06 mg/kg/dose q3-4 hrs</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>0.01-0.2 mg/kg/dose q3-4 hrs</td>
</tr>
<tr>
<td>Oxycodone</td>
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</table>

*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

1. Preoperative patient assessment, preparation, and interventions
2. Intraoperative anesthesia and analgesia, with preemptive measures for postoperative pain control
3. No pain or pain not requiring intervention
4. Reassess
5. Postoperative drug and nondrug interventions
6. Surgical Evaluation
7. Treat
8. Assess effect of interventions
9. Change drug interval, dose route, modality, or add adjuvant or treat side effect
10. Satisfactory response
11. Optimize dose interval
12. Satisfactory planning
13. Discharge planning