PEDRIATRIC PAIN MANAGEMENT

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Objectives

- Physiology of pain in children
- Assessing pain in children
- Identify the emotional and financial impact pediatric chronic pain has on families and the community
- Examine the most prevalent diagnoses
- Interdisciplinary, multimodal approach
- Opioid epidemic and use of opioids in pediatrics
Conflict of Interest Disclosure

- Regretably None
MISTAKES

It could be that the purpose of your life is only to serve as a warning to others.
At 22 weeks GA all neural components for transmission of a pain signal from the periphery to the brain are intact.
At 29 weeks a pain signal from the periphery to the cerebral cortex can be recognized.
The experience of chronic intermittent pain from heel sticks has been shown to contribute to long term physical effects such as hyperalgesia.
# Myths about Pediatric Pain

<table>
<thead>
<tr>
<th>MYTH</th>
<th>TRUTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Infants do not feel pain</td>
<td>1. The CNS of 29 week fetus can sense and interpret pain</td>
</tr>
<tr>
<td>2. They tolerate pain better than adults</td>
<td>2. Tolerance for pain actually increases with age</td>
</tr>
<tr>
<td>3. Unable to communicate that they are in pain</td>
<td>3. With proper pain scales, pain levels can be determined.</td>
</tr>
</tbody>
</table>
4. Children become accustomed to pain

5. Children will tell you when they hurt

6. Their behavior reflects the pain intensity

4. Increased exposure to pain increases their anxiety

5. They may not because of fear of the treatment

6. They have unique ways of coping
Pain is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.”

- International Association for the Study of Pain
Emotional Experience & Potential Tissue Damage
Pain Assessment Scales

SELF-REPORT TOOLS

- 0-10 NUMERIC RATING SCALE (NRS)
- WONG BAKER FACES 0-10 SCALE

BEHAVIORAL TOOLS

- FLACC (FACES, LEGS, ACTIVITY, CRY, CONSOLABILITY)
- N-PASS (NEONATAL PAIN, AGITATION, SEDATION SCALE)
Pain Scales

FLACC scale

<table>
<thead>
<tr>
<th>Categories</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No particular expression or smile; disinterested</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Occasional grimace or frown, withdrawn</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Frequent to constant frown, clenched jaw, quivering chin</td>
</tr>
<tr>
<td>Legs</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No position or relaxed</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Uneasy, restless, tense</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Kicking, or legs drawn up</td>
</tr>
<tr>
<td>Activity</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Lying quietly, normal position, moves easily</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Squirming, shifting back and forth, tense</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Arched, rigid, or jerking</td>
</tr>
<tr>
<td>Cry</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No crying (awake or asleep)</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Moans or whimpers, occasional complaint</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Crying steadily, screams or sobs, frequent complaints</td>
</tr>
<tr>
<td>Consolability</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Content, relaxed</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Reassured by occasional touching, hugging, or talking to, Distractions</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Difficult to console or comfort</td>
</tr>
</tbody>
</table>

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 and 10.

Wong-Baker FACES® Pain Rating Scale

0: No Hurt
2: Hurts Little Bit
4: Hurts Little More
6: Hurts Even More
8: Hurts Whole Lot
10: Hurts Worst
Current estimates suggest one in four children will have an episode of chronic pain that lasts 3 months or longer

1 King et al., Pain, 2011
Average of 10% to 30% of adolescents in a community sample reported having weekly abdominal, headache, or musculoskeletal pains
- Functional abdominal pain accounts for 2 - 4% of all pediatric visits
- Headaches and lower extremity pain are frequent precursors to pediatrician and emergency room visits

1 King et al., Pain, 2011
Impact on Everyday Life

- Affects quality of life and **school attendance**
  - decreased participation in recreational activities
- Increase in health care utilization and high costs on the healthcare system
- Impact on Overall Health
- Increased Risk for the Development of Adult Chronic Pain

$19.5 billion annually in direct and indirect costs for US children/adolescents

- Cost of diagnostic exams, hospitalization, doctors’ visits, and medications
- Costs related to taking time off from work, transportation, and additional child care for siblings

Childhood chronic pain described as “a modern public health disaster”¹

¹ Clinch and Eccleston, Rheumatology, 2009
Observed pattern of dysfunctional familial relationships

Exorbitant stress within the family and child’s life is pervasive

Family might exhibit unhealthy relationship dynamic

Psychological enmeshment between parent in child

1 Weismann & Uziel, Pediatric Rheumatology, 2016
Often consumed with ongoing medical management and appointments

Parents will often be frustrated due to receiving unnecessary OR necessary treatments, procedures, or "ectomies" but pt still without relief

Social restrictions and high levels of parenting guilt, anger, depressive symptoms, and anxiety

In pediatrics, there is a high rate of comorbid psychological disorders

1 Weismann & Uziel, Pediatric Rheumatology, 2016
Most common Pain complaints at Children’s Health

- 1) Headaches
- 2) Amplified musculoskeletal pain
- 3) Abdominal pain
- 4) Back pain

***Anxiety***
Migraine Without Aura, ICHD-3

Diagnostic Criteria

A. At least 5 attacks fulfilling criteria B-D
B. Lasts 4-27 hr (untreated or unsuccessfully treated)
C. Two of the following 4 characteristics
   1. Unilateral
   2. Pulsating quality
   3. Moderate or severe intensity
   4. Aggravation by or causing avoidance of routine physical activity
D. At least one of the following
   1. Nausea and/or vomiting
   2. Photophobia and phonophobia
Migraine in Peds

- Duration of attacks 2-72 hours

- More often bilateral
  - Unilateral pain emerges in late adolescence or early adult life

- Usually fronto-temporal
  - Occipital is rare and calls for diagnostic caution

- In young children, photophobia/phonophobia can be inferred from behavior.
PIN Criteria

- Photophobia / Phonophobia
- Inability to continue with their activities
- Nausea or vomiting
By age 3, 3-8% of children

By age 5, 19.5%

By age 7, 37%-51%
Incidence of Migraine in Children

- **Females peak incidence:**
  - With aura: 12-13 years old (14.1/1,000 person-years)
  - Without aura: 14-17 years old (18.9/1,000 person-years)

- **Males peak incidence:**
  - With aura: 5 years old (6.6/1,000 person-years)
  - Without aura: 10-11 years old (10/1,000 person-years)
Cyclic Vomiting Syndrome
- (N/V, 1 hr to 10 days)

Abdominal Migraine
- (+/- N/V, abdominal pain, 2-72 hours)

Benign Paroxysmal Vertigo of Childhood
- (+/- N/V, vertigo, minutes – hours)
Infrequent, Frequent, Chronic, or Probable
Last 30 minutes to 7 days
At least 2 of the following 4 characteristics:
- Bilateral location
- Pressing or tightening (non-pulsatile) quality
- Mild or moderate intensity
- Not aggravated by routine physical activity
Both of the following:
- No nausea or vomiting
- No more than one of photo- or phonophobia
Red Flags

- Age of onset prior to 3 years of age
- Occipital Headache
- Headache wakes child up at night
- Headaches in the morning
- Loss of developmental milestones
Overactive reflex leads to blood vessel constriction causing oxygen deprivation to tissues, lactic acid build-up, allodynia, temperature, and color changes of affected area.
Amplified Musculoskeletal Pain

- Intermittent or Constant
- Whole body or localized

Umbrella term for a number of pain disorders:

- Diffuse amplified pain = Pediatric Fibromyalgia
- CRPS with autonomic changes
- Localized amplified pain without autonomic changes
- Somatoform Pain Disorders
- Benign Hypermobility Syndrome
Causes of AMPS

- Three primary causes:
  - Injury
  - Illness
  - Psychological Stress

- Hormones and Genetics can play a role as well
Stress can be a complicating factor and a trigger

Stressors – (+) or (-), big/small, not just events – also feelings/personality

Often negatively affected by peers, school officials, & health care professionals who have dismissed their symptoms

Family dynamics play a role

Patient and family can benefit from CBT. Provides patient with coping strategies, also identifies stressors (school, family, friends)
Lab work – normal

MRI’s – normal

H&P includes listening to child’s emotions

Autonomic changes often not present during visit
The Beighton Hypermobility Score

- 1. Passively dorsiflex 5th MCP joint >90 degrees
- 2. Oppose the thumb to volar aspect of forearm
- 3. Hyperextend elbow > 10 degrees
- 4. Hyperextend knee to > 10 degrees
- 5. Place hands flat on floor without bending knees

Score: 1 point for each side of maneuvers 1-4, for a total of 9 points possible
Benign Joint Hypermobility Syndrome

- Major Criteria
  - 1.) Beighton score of 4 or greater
  - 2.) Arthralgia for >3 months in 4 or more joints
Minor Criteria

1.) Beighton score of 1, 2 or 3 (0-3 if aged 50+)
2.) Arthralgia (>3 months) in 1-3 joints or back pain, spondylosis, spondylolysis/spondylolisthesis
3.) Dislocation/subluxation in >1 joint, or in 1 joint in >1 occasion
4.) Soft tissue rheumatism. >3 lesions (e.g. epicondylitis, bursitis)
5.) Marfanoid habitus
6.) Abnormal skin: striae, hyperextensibility, thin skin
7.) Eye signs: drooping eyelids or myopia or antimongoloid slant
8.) Varicose veins or hernia or uterine/rectal prolapse
BJHS Diagnosis

- Two major criteria
- One major and two minor criteria
- Four minor criteria
- Two minor criteria when there is a 1\textsuperscript{st} degree relative affected
- Excluded by the presence of Marfan or Ehlers-Danlos syndrome
Difficulties with Early Diagnosis

- Not all AMPS symptoms present, often evolve over time
- Urgent problems such as infection or musculoskeletal injuries need to be ruled out.
- Wide spectrum of AMPS, so clinicians not well versed in AMPS often don’t recognize it.
Treatment Focus: Return to Wellness

- Aerobic Exercise to increase cardiovascular tone
- Desensitization Therapies
- Individualized Psychotherapy (coping strategies/stress mgmt)
- Eliminating medications

- Goal is to break pain cycle and retrain affected nerves
Return to school, sports, and socializing with friends

***Function returns before pain resolves***

Educating children that using their body in normal ways is not damaging often enables them to work through their pain.

Psychology addresses the mind-body connection
Benign Hypermobility Syndrome vs Ehlers-Danlos Syndrome Type 3 vs Amplified Musculoskeletal Pain vs CRPS

Does it matter?

Goal: Function, function, function
Abdominal Pain, Rome IV Criteria

- Irritable Bowel Syndrome
- Functional Constipation
- Functional Abdominal Pain Syndrome
Irritable Bowel Syndrome

- Recurrent abdominal pain or discomfort at least 1 day per week on average in the last 3 months* associated with 2+ of the following:
  - Related to defecation
  - Associated with a change of frequency of stool
  - Associated with a change in form of stool

- *Symptom onset at least 6 months prior to diagnosis

- Often begins with an illness
- Appears to be genetically pre-programmed
Functional Constipation

1. Must include 2+ of the following:
   - Straining with 25%+ of defecations
   - Lumpy / hard stools (Bristol 1 or 2) with 25%+ of defecations
   - Sensation of incomplete evacuation with 25%+ of defecations
   - Sensation of anorectal obstruction for 25%+ of defecations
   - Manual maneuvers to facilitate 25%+ of defecations
   - Fewer than 3 spontaneous defecations per week

2. Loose stools rarely present without laxatives

3. Insufficient criteria for IBS
Must include ALL of the following:

- Continuous or nearly continuous abdominal pain
- No or only occasional relationship of pain with physiological events (e.g. eating, defecation, or menses)
- Some loss of daily functioning
- Pain is not feigned (e.g. malingering)
- Insufficient symptoms to meet criteria for another functional GI disorder
Symptom-based Diagnosis

- Rome IV removed the dictum that there is “no evidence for organic disease” has been replaced.

- “After appropriate medical evaluation the symptoms cannot be attributed to another condition.”

- Allows clinicians to perform selective or no testing to support a positive diagnosis of a FGID
Constipation in our Abdominal Pain Clinic

- 101 new patients from January 2012 to April 2016
- 86 children had x-ray prompted by H&P
- 82.5% (71 patients) had fecal impaction on x-ray
- Mean age 13, median 13.5, range 4-17 years
- Female to male ratio 2.44:1
Back Pain

- Rarely disk related
- Most commonly mechanical low back pain
- Congenital spondylosis → spondylolisthesis
Excessive anxiety and worry, occurring more days than not for at least 6 months, about a number of events or activities. The anxiety and worry are associated with three (or more) of the following 6 symptoms with at least some symptoms present for more days than not for the past 6 months.

- 1. Restlessness or feeling keyed up or on edge
- 2. Being easily fatigued
- 3. Difficulty concentrating or mind going blank
- 4. Irritability
- 5. Muscle tension
- 6. Sleep disturbance
Five (or more) of the following symptoms have been present during at least a two week period and represent a change from previous functioning with at least one of the symptoms being depressed mood or anhedonia.

- 1. Depressed mood or irritable mood most of the day, nearly every day
- 2. Markedly diminished interest/pleasure in many enjoyed activities
- 3. Significant change in weight or appetite
- 4. Insomnia or hypersomnia nearly every day
- 5. Psychomotor agitation or retardation nearly every day
6. Fatigue or loss of energy nearly every day
7. Feeling of worthlessness, inappropriate guilt
8. Diminished ability to think or concentrate or indecisiveness
9. Recurrent thoughts of death

- Rule out mood disturbance d/t substance / medical condition
- Rule out bipolar depression
- Suicidal or Homicidal Ideation
Other questions in Anxiety/Depression

- Impaired functioning
- Significant stressors
- History of abuse
- Suicide attempts in patient or family
- Substance abuse in patient or family
- Psychiatric disorders in patient or family
Social Media Effect on Mood

- Study in 2017 from 2010-2015 of over 500,000 8th-12th grade US students showed an increase of 33% in depression
- Suicide rate in girls increased by 65%

- Smart phones introduced 2007
- By 2015, 92% of teens had smart phones

- Studies so far primarily show correlation, but not necessarily causation.

Twenge, Jean., et al. Journal of Clinical Psychological Science
Social Media Negative Effects

- Increased depression
- Perceived isolation
- Decreased self-esteem
- Less healthy activity
- Disrupted concentration
- Sleep deprivation
Minimizing Social Media’s Negative Effects

- Focus on balance
- Turn off notifications
- Look out for kids with higher risk for depression
- Teach mindful use of social media
- Model restraint and balance in your own media diet
- **Phone-free time before sleep**
Bullying

- The bully used to be location dependent
- The bully is with them 24/7
Operant Conditioning

- Operant conditioning is a way of learning due to natural consequences of our actions

- Positive reinforcement
- Example:
  - Social attention by others to soothe the pain
  - Getting picked up from school because of pain
  - Getting out of chores because of pain

Avoidance learning (negative reinforcement)

- When frequency of a certain behavior increases after that behavior enabled the individual to escape or avoid aversive stimulation
- Example:
  - Limping, bracing, activity avoidance cause decreased pain sensation
  - The anticipation of pain causes patients to avoid activities and by avoiding the activity they do not experience the pain

If a child does not develop positive coping strategies, maladaptive behaviors may develop.

To avoid operant conditioning, normative physical activity should be encouraged and positively reinforced.

The multi-modal approach allows children and family to accept pain as a symptom they can learn to manage, rather than focusing on complete elimination of pain.

Multimodal Flow Process

Nonpharmacologic therapies

Exercise

Cognitive behavioral therapy

Physical/occupational therapy

Interdisciplinary rehabilitation

Acupuncture

Massage therapy

Pharmacologic therapies

Nonsteroidal anti-inflammatory drugs (NSAIDs)

Acetaminophen

Opioids

Local anesthetics

Steroid injections
Goals of Multi-modal Treatment Plan

- Optimize function
- Address anxiety
- Improve physical strength
- Sleep hygiene
- Return to normal eating habits
- Getting out of the sick role
- Back to school
- Resume athletics or band
- Address comorbid conditions
Current State of Pain Management at Children’s Health

- Multidisciplinary Chronic Pain Clinic
  - 3 new patients, 2 days per week
  - 3 Providers on the same day
    - Pain MD
    - Psychologist
    - Physical Therapist
  - 4 hour appointment
    - 1 hour for each provider
    - 1 hour wrap-up session with all providers, patient, and family
  - Follow up
    - Pain APP for 1 hour appointment
    - Psychology through our clinic or in the community
    - PT through CHST (OCH locations) or in the community

- Chronic Abdominal Pain Clinic
  - 3 new patients, 1 day per month
  - Same format as chronic pain clinic
  - GI MD replaces Physical Therapy portion
  - Patient follows up with either Pain or GI APP based on patient needs

- Chronic Headaches
  - Monday through Friday
  - 1 hour appointments
  - Seen by MD or APP as new patient and follow up
Quality of life measurements for chronic patients ONLY

75% of our NEW pain patients who follow up show improved QOL at their first follow up visit

By second visit, they have had time to practice shifting from pain relief to focusing on function. The multidisciplinary apt is an intervention because psychology and PT show exercises and give homework until they are established with other providers if needed.

40% of our patients do not follow up after their initial appointment

Of those, ~75% of them report improvement in symptoms and no need for follow up
Pilot Program

- 3 weeks Monday – Friday
  - 5 female patients
  - Avg age: 15 years
  - Avg time with pain: 3.3 years
  - Insurance: Commercial

- Diagnoses
  - Amplified musculoskeletal pain
  - Reflex sympathetic dystrophy
  - Complex regional pain syndrome
  - Headaches

Services Provided

- Physical Therapy
- Occupational Therapy
- Aquatic Therapy
- Psychology – Indiv.
- Psychology – Family
- Child Life
- Music Therapy
- Pet Therapy
- Massage Therapy
- Recreational Therapy
- Nutrition counseling
- School Services
Goal: Restore function for pediatric patients suffering from chronic pain

Improvements not accounted for in data
- 6 minute walk post-test → “Can I run?”
- Improved form with activities
- Improved perception of function

They are not alone – talk with peers, other parents, shared experiences
- Parents and patients are seeking identity, to know they are not defined by pain
- Peer engagement is key; different child with peers vs parent
- Parental support and education - If you change the child without changing the parent, the parent will undo all of your work

Comments:
- You gave us our time back!
- She isn’t her diagnosis.
- We have done all of these things before but having them at the same time with the same message changed everything.
Psychology measures above also include: The Patient-Reported Outcomes Measurement Information System (PROMIS®) - 29
Occupational Therapy – BOT 2
Assesses functional improvement in all extremities, balance and speed/agility.

Physical Therapy – 6 Minute Walk Test
Distance walked with consistent pace in 6 minutes. Independent predictor of morbidity and mortality in adults.
Pilot Program Photos
## Cleveland Clinic’s Financial Results

<table>
<thead>
<tr>
<th></th>
<th>Estimated Annual Cost</th>
<th></th>
<th>Program Cost</th>
<th>Estimated Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Admission</td>
<td>Post-Admission</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Healthcare</strong></td>
<td>$61,988</td>
<td>$14,189</td>
<td>$31,720</td>
<td>$27,119</td>
</tr>
<tr>
<td><strong>Missed Work</strong></td>
<td>$12,229</td>
<td>$1,189</td>
<td></td>
<td></td>
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</tbody>
</table>

APS Pediatric Pain Programs by State
At Children’s Health the Acute Pain Service is often equated with the The Wean Team

PICU induced opioid and benzodiazepine habituation

WAT-1, updated Withdrawal Assessment Tool
### Information from patient record, previous 12 hours

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any loose/watery stools</td>
<td>No = 0, Yes = 1</td>
</tr>
<tr>
<td>Any vomiting/wretching/gagging</td>
<td>No = 0, Yes = 1</td>
</tr>
<tr>
<td>Temperature &gt; 37.8°C</td>
<td>No = 0, Yes = 1</td>
</tr>
</tbody>
</table>

#### 2 minute pre-stimulus observation

<table>
<thead>
<tr>
<th>Observation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>State: SBS ≤ 0 or asleep/awake/calm</td>
<td>0</td>
</tr>
<tr>
<td>State: SBS &gt; +1 or awake/distressed</td>
<td>1</td>
</tr>
<tr>
<td>Tremor: None/mild</td>
<td>0</td>
</tr>
<tr>
<td>Tremor: Moderate/severe</td>
<td>1</td>
</tr>
<tr>
<td>Any sweating: No</td>
<td>0</td>
</tr>
<tr>
<td>Any sweating: Yes</td>
<td>1</td>
</tr>
<tr>
<td>Uncoordinated/repetitive movement: None/mild</td>
<td>0</td>
</tr>
<tr>
<td>Uncoordinated/repetitive movement: Moderate/severe</td>
<td>1</td>
</tr>
<tr>
<td>Yawning or sneezing: None or 1</td>
<td>0</td>
</tr>
<tr>
<td>Yawning or sneezing: ≥2</td>
<td>1</td>
</tr>
</tbody>
</table>

#### 1 minute stimulus observation

<table>
<thead>
<tr>
<th>Observation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Startle to touch: None/mild</td>
<td>0</td>
</tr>
<tr>
<td>Startle to touch: Moderate/severe</td>
<td>1</td>
</tr>
<tr>
<td>Muscle tone: Normal</td>
<td>0</td>
</tr>
<tr>
<td>Muscle tone: Increased</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Post-stimulus recovery

<table>
<thead>
<tr>
<th>Observation</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to gain calm state (SBS ≤ 0)</td>
<td>&lt; 2 min = 0, 2 - 5 min = 1, &gt; 5 min = 2</td>
</tr>
</tbody>
</table>

### Total Score (0-12)
- Fentanyl 1 mcg/kg/hr = Methadone 0.1 mg/kg/dose PO Q6
- Midazolam 0.1 mg/kg/hr = Diazepam 0.1mg/kg/dose PO Q6
Age of the patient is paramount

Infusion days in PICU. 95% withdraw after 5 days

Underlying medical history (HLHS, etc.)
Wean Process

- Only wean one medication per day
- 10% of original dose
- Alternating days
In the acute pain setting, opioids continue to be indicated and utilized.

At Children’s Health, opioid utilization has decreased 40% in the inpatient setting over the last year.

Unclear if this is an over-correction or appropriate prescribing.
### Pasero Opioid-Induced Sedation Scale (POSS)

<table>
<thead>
<tr>
<th>Sedation Level</th>
<th>Assessment of Level</th>
<th>Required Interventions If Using Opioids</th>
</tr>
</thead>
<tbody>
<tr>
<td>S = Sleeping, easy to arouse</td>
<td>Sedation level acceptable</td>
<td>None needed</td>
</tr>
<tr>
<td>1 = Awake and alert</td>
<td>Sedation level acceptable</td>
<td>None needed</td>
</tr>
<tr>
<td>2 = Slightly drowsy, easily aroused</td>
<td>Sedation level acceptable</td>
<td>None needed</td>
</tr>
<tr>
<td>3 = Frequently drowsy, arousable, drifts off to sleep during conversation</td>
<td>Sedation level unacceptable</td>
<td>Notify provider. Monitor respiratory levels closely until stable at POSS &lt;3. Consider MET</td>
</tr>
<tr>
<td>4 = Somnolent, minimal or no response to verbal or physical stimulation</td>
<td>Sedation level unacceptable</td>
<td>Stop opioid. Notify provider. Activate MET</td>
</tr>
</tbody>
</table>

- **Sedation Level**: Levels of sedation based on a scale from 0 to 4, indicating the level of consciousness and responsiveness.
- **Assessment of Level**: Whether the sedation level is acceptable or unacceptable.
- **Required Interventions If Using Opioids**: Actions to take based on the sedation level, including notifying the provider, monitoring, and activating medical emergency teams (MET).
Opioids for Chronic Pain in Pediatrics

- Used sparingly
- Currently no more than 10 total patients using opioids chronically
- Sickle cell, degenerative joint disorders, neuromuscular diseases, spastic tetraplegia
Are opioids indicated for these pediatric complaints?

- Back pain: “Opioids should be used sparingly and done only with assistance from pain specialist.” Pediatric Clinics of North America, 2018.
- Abdominal pain: “Opioids can aggravate chronic abdominal pain, have side effects, and should be avoided.” Physical Medicine and Rehabilitation, 2015.
Pharmacologic interventions currently employed are primarily extrapolated from adult trials without efficacy in children\(^1\)

Children with chronic pain are best cared for with interdisciplinary assessment and management with combination of medicine, psychology, and rehabilitation services\(^1\)

Given comorbidity of anxiety and depression in adolescent chronic pain population, at greater risk of opioid misuse later in life\(^2\)

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1 Assessment and management of children with chronic pain American pain society, 2012 & 2
Volkow & Mclellan, Nejm, 2016
There is a mismatch between the amount of opioids needed to treat pediatric acute pain, with children using <50% of prescribed opioids.

Leading source of RX opioids among adolescent non-medical users are from their peers and from their own previous opioid prescriptions.

Left over prescription opioids account for a substantial source of nonmedical use of RX opioids among HS Seniors.

American Academy of Pediatrics, 2017
What providers can do

- Minimize use of ER/LA
- Have appropriate amount of opiate number for problem (ie: don’t write for #100 hydromorphone tablets for a broken arm)
- Non-pharmacologic therapy and non-opioid medications
- Talk to the young people about the dangers of opioids
- When patient is discharged, educate on appropriate storage and disposal
- Arrange treatment for opioid use disorder if needed
- Please call pain management team if you need assistance, resources, etc
# Opioid Risk Tool

This tool should be administered to patients upon an initial visit prior to beginning opioid therapy for pain management. A score of 3 or lower indicates low risk for future opioid abuse, a score of 4 to 7 indicates moderate risk for opioid abuse, and a score of 8 or higher indicates a high risk for opioid abuse.

<table>
<thead>
<tr>
<th>Mark each box that applies</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family History of Substance Abuse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Illegal Drugs</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Rx Drugs</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Personal History of Substance Abuse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Illegal Drugs</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Rx Drugs</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Age between 16—45 years</strong></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>History of Preadolescent Sexual Abuse</strong></td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td><strong>Psychological Disease</strong></td>
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<tr>
<td>ADD, OCD, Bipolar, Schizophrenia</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Depression</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Scoring Totals</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
References


2. Foley KM. Controlling the pain of cancer. Scientific American 1996; 275(3) 164-165


Jesus said to him, “I am the way, and the truth, and the life. No one comes to the Father except through me.”