

Calculating morphine milligram equivalents (MME)

OPIOID (doses in mg/day except where noted)	CONVERSION FACTOR
Codeine	0.15
Fentanyl transdermal (in mcg/hr)	2.4
Hydrocodone	1
Hydromorphone	4
Methadone	
1-20 mg/day	4
21-40 mg/day	8
41-60 mg/day	10
≥ 61-80 mg/day	12
Morphine	1
Oxycodone	1.5
Oxymorphone	3

These dose conversions are estimated and cannot account for all individual differences in genetics and pharmacokinetics.

Reference: National Center for Injury Prevention and Control. Oral morphine milligram equivalent conversion factors, 2017 version. Atlanta, GA: Centers for Disease Control and Prevention; 2017.

Common Opioid Formulations

Opioid	Dosage form	Onset (min)	Peak	Duration (hours)
Morphine	Oral solution Tablet	15-30	1 hour	3-5
	Injection	5-10	20 min	
Hydromorphone	Oral solution Tablet	15-30	30-60 min	3-4
	Injection	5	10-20 min	
Oxycodone +/- acetaminophen	Oral solution Tablet Capsule	10-15	30-60 min	3-5
Hydrocodone/ acetaminophen	Oral solution Tablet Capsule	10-20	30-60 min	4-8
Tramadol	Oral suspension Tablet	60	2-3 hours	3-6

Reference: Lexicomp Online 2018.

A Clinician, Patient, and Parent Guide to Managing Acute and Chronic Pain Episodes
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What is Acute/Chronic Pain:

- An unpleasant sensory & emotional experience associated with actual or potential tissue damage
- Pain is generated in the brain, an experience resulting from cognitive and sensory inputs
- Experience of pain includes three major dimensions (cognitive, affective, sensory)
 - Cognitive: Involving the mind; awareness of pain
 - Affective: Person's outward behavioral response to pain
 - Sensory: Involvement of pain sensing neurons and pain intensity
- Important to track pain episodes for medical team and healthcare providers to inform ongoing treatment:
 - Pain rating (0=no pain to 10=worse pain ever experienced)
 - What was happening prior to pain episode
 - What happened during pain episode (type of pain, location, duration of pain, etc.)
 - What happened following pain episode
- Track days that you skipped an activity, missed school, or was not able to get out of bed
 - Date/time; What happened day prior to pain episode; What was the consequence of pain episode

Explanation and Common Causes of Acute and/or Chronic Pain:

- Good news is that some of your pain experiences may be the body's response to some kind of stress - You may not even be aware of the stress!
- Physiological causes (e.g., prior surgical or medical intervention, medical condition causing pain, chronic pain, broken bone, infection, etc.) are only one of several factors that can cause or contribute to unpleasant or impairing physical symptoms.
- Distress is converted from emotional symptoms (sadness, anger, etc.) to physical symptoms that affect the nervous system – You may or may not be aware of the distress!
- Some people may experience sadness, depression, anxiety, worry, fear, happiness, etc. (both expressed and not expressed), which can lead one's body to convert emotional pain to physical pain
- Emotions and stress need to be expressed by the body, either by words or symptoms – This condition is a body's way of "blowing off steam," sending "false alarms" to the nervous system
- Emotional issues seen in this disorder can result in real chemical changes in the body that have been measurable in research studies

- This diagnosis and treatment can often cause “mixed emotions” in families that cause many different reactions, including the potential for anger, frustration, worry, sadness, and hopelessness at times

Treatment Options and Recommendations:

- **Evidenced-based treatment approach includes psychological, physical, and complementary approaches** - Regular appointments with medical and mental health providers can be helpful – this should be discussed with your treatment team
- **Treatment options include a combination of one or more of the following:** individual and/or family therapy, physical therapy, yoga, meditation, pain rehabilitation, medication management, and regular follow-ups with healthcare providers to address underlying stress, anxiety, depression, or trauma
- **Psychological Interventions: Work with psychologist to develop strategies to help manage pain:**
 - Learn coping skills to reduce painful sensations
 - Change maladaptive thoughts/feelings about pain
 - Enhance ability of child/adolescent to reach personal goals
 - Promote behavior change
 - Modify responses of individuals in child’s/adolescent’s environment to encourage and reinforce adaptive behavior
 - Relaxation and biofeedback:
 - Relaxation: aims to encourage progressive muscle relaxation, imagery, and self-hypnosis
 - Biofeedback: electronic equipment used to measure and provide information back to the patient about specific physiological functions
 - Cognitive Skills: cognitive restructuring, thought stopping, exposure
 - Sleep interventions: promote positive sleep hygiene
 - School Reintegration: encourage to attend school regularly, slowly increase amount of time in school
 - Acceptance and Commitment Therapy:
 - Interventions aimed at improving functioning by increasing psychological flexibility
 - Increasing number of studies that support the use of ACT in the treatment of chronic pain
 - Increasing support for the use of ACT with pediatric pain patients
- **Physical Interventions:**
 - Identify, schedule pleasant activities
 - Increase “uptime”, minimize “downtime”

- Activity pacing: small graduated steps, contract with child to participate in activities for specific time, alternate rest and non-rest periods
- Physical therapy
- **Complementary & Alternative Therapies (CAM)**
 - Acupuncture: stimulation of specific points on the body with insertion and manipulation of specialized needles
 - Yoga: mind-body practice that combines physical postures, breathing techniques, and meditation or relaxation

Strategies for Managing Pain Episodes and Returning to Normal Activities

- **Maintain Healthy Behavior**
 - Focus on functioning (rather than symptoms)
 - Maintain normal activities as much as possible (school, chores, etc.)
 - Set daily goals to increase functioning
 - Praise progress – “I did really well today”
 - Get good sleep and eat well
- **Practice Coping Skills Daily**
 - Relax (deep/diaphragmatic breathing; progressive muscle relaxation)
 - Think about something fun (imagery)
 - Do something fun or distracting (play a game, read a book, talk to a friend)
 - Stay active!!
- **Minimize Impact of Symptoms**
 - Make the symptoms a small part of your life. When symptoms occur:
 - Continue with your activity as much as possible
 - When symptoms stop, return to activities as if symptoms never occurred
 - Do not talk about symptoms
 - Stay calm even when you have pain
 - Share your worries with other adults or therapist

Strategies for Managing Pain Episodes in School and Returning to Normal School Activities

- Your goal should be to work towards attending school for the full day as soon as possible, even if symptoms have not fully resolved
- Limit how much symptoms change or interfere with normal activities
- Continue to participate in activities but have a plan to manage any activities that might worsen symptoms
- Plan for a time-limited rest break if symptoms arise at school

- Use coping strategies at school
- Gradually and steadily increase participation in physical and social activities you have been avoiding
- Remember, maintaining school and home routines helps improve symptoms and functioning in the long-term

Additional Resources:

Online Pediatric Pain Curriculum:

<http://www.sickkids.ca/pain-centre/Health-care-Professionals/Online%20Pain%20Curriculum/index.html>

Spirito & Kazak (2006). *Effective and Emerging Treatments in Pediatric Psychology*. Oxford University Press.

Information provided in this handout was modified and adapted from several resources: International Association for the Study of Pain (IASP, 2012); Online Pediatric Pain Curriculum (website); Society of Pediatric Psychology Resources (Division 54); etc.