



## Pain Management at Boston Medical Center

"Pain is whatever the experiencing person says it is, existing whenever he says it does." -M.McCaffery, 1968

### Summary of Pain Management Policy at BMC

- Assessment of pain will be made upon admission (to hospital/clinic/unit), upon transfer, post-operatively, after significant change in patient condition, with change in caregiver and upon discharge.
- Document pain intensity using a 0-10 scale or the Wong-Baker FACES: **0=NO PAIN...10=WORST PAIN IMAGINABLE**
- Surrogate descriptors will be used for nonverbal or preverbal patients.
- Develop an individualized pain management plan based on patient goals and functional status.
- Readjust plan as needed based on patient response to interventions.

### Pain Management Medication Guidelines

#### Always Consider:

- The "type" of pain, e.g. somatic vs. neuropathic
- Patient as a "unique individual" with specific physiological and psychosocial components of his/her pain experience
- Language, age, developmental/cognitive status, coping skills, cultural background/beliefs, availability of personal resources
- Drug properties vs. patient specific parameters that may affect drug metabolism, elimination, etc.

**General Considerations:** "Severity" of the pain should be considered first in developing analgesic regimen

- "Moderate-to-severe" pain:** interferes with the patient performing activities of daily living (ADLs) or 5+ on a 0-10 scale suggests opioids should be initially considered, or current opioid dose increased, interval changed or opioid changed to a more effective type
- "Mild-to-moderate" pain.** 0-5, usually responds to a mix of physical treatment modalities, NSAIDs, and/or adjuvant medications currently available. Opioids are appropriate in certain cases.
- "Acute/Intermittent" and "Chronic/Intermittent"** pain may effectively controlled by short-acting opioids; however, **"Acute/Continuous"** and **"Chronic/Continuous"** pain usually requires treatment that is "continuous" with long-acting, sustained-release, or ATC (around-the-clock) dosing.

**Goals of Pain Management:** Increase/maintain comfort, function & prevent/control side effects

**Non-Opioid Analgesics:** Additive effects with opioids may relieve pain so that higher doses of opioids are not required.

**Analgesics & Adjuvants:** Doses given below for pain relief are common starting/average doses. Please contact pharmacy for maximum dose information and with any questions or concerns regarding safe and effective dosing.

### Oral Analgesic Medications For Pain Relief

Agent/Usual Dose:	Note:
Acetaminophen: 325-650mg po q 4-6 hrs or 1000mg po q 6	No anti-platelet/-inflammatory effects; additive analgesia when given with opioid; do not use in hepatic failure
Choline/magnesium salicylate: 500-1500mg bid-tid	Minimal platelet effects; use with caution in renal failure & GI disease
Ibuprofen: 600-800mg po tid	Use cautiously, if at all, in renal or hepatic failure, ulcer disease, & patients on anticoagulants
Indomethacin: 25-50mg po bid- tid	As above
Naproxen sodium: 250-500mg bid-tid (max 1250mg/day)	As above

### Oral Adjuvant Medications For Pain Relief

Class/Agent	Use	Comment
<b>Anticonvulsants</b> Gabapentin 100-300mg qd-tid Carbamazepine 100-200mg bid Phenytoin 150-200mg bid	Neuropathic "shooting" or "burning" pain	• Monitor drug levels of carbamazepine and phenytoin (need albumin to appropriately assess phenytoin level)
<b>Antidepressants</b> <i>Tricyclics</i> Amitriptyline 10-25 mg qhs Nortriptyline 10-50mg qhs <i>Non-Tricyclics &amp; SSRIs</i> Trazodone 50mg tid; qhs Paroxetine 20 mg qhs Fluoxetine 20 mg qam	Neuropathic pain <i>Note:</i> Both the anti-convulsants & tricyclic anti-depressants have been used with some success in paroxysmal or sudden onset pain	• Tricyclics have anti-cholinergic side effects  • SSRIs may cause sexual dysfunction, insomnia, sedation
<b>Biphosphonates</b> Pamidronate 90mg IV infusion q monthly	Malignant bone pain	Monitor: • BUN/Creatinine • Electrolytes
<b>Muscle relaxants</b> Cyclobenzaprine 10mg tid Baclofen 10mg tid Tizanidine 4-8mg qd Diazepam 2-10mg bid-tid Clonazepam 0.5-1mg qd-bid	Spastic muscle pain	• Use short-term • Side-effects: sleepiness, orthostatic htn, constipation, vomiting

For the complete pain management guideline or information on formulary products, please visit:  
[www.internal.bmc.org/pharmacy](http://www.internal.bmc.org/pharmacy)

### Opioid Analgesics: Equianalgesic Conversion

Opioid	Parenteral	Oral
Morphine	10mg	30mg (chronic) 60mg (acute)
Codeine	130mg	200mg
Hydromorphone	1.5mg	7.5mg
Meperidine*	75mg	300mg
Methadone	10mg	20mg
Oxycodone	N/A	20mg
Fentanyl	100mcg	N/A

\*Not a preferred drug. **Meperidine should be used for:**

- Treatment of acute episodes of moderate to severe pain in patient with a history of unmanageable adverse reactions or unsuccessful pain management with other opioid(s).
- Treatment prevention of rigors.
- Pre and post-procedure analgesia where rapid onset and short duration of drug action will improve patient care.
- Research protocols where meperidine is specified.
- Administration for neuraxial analgesia by anesthesia.

### Morphine/Duragesic™ Equivalency

Morphine Dose (mg) 24-hr. Parenteral dose	Fentanyl Patch (mcg/hr)
30	25
60	50
90	75
120	100
150	125
180	150
210	175
240	200
270	225
300	250
330	275
360	300

For Sustained-release products:  
Oxycodone CR (OxyContin™) 10mg = Morphine Sulfate CR (MS Contin™) 20mg

**Conversions Between Opioids:** When converting between opioids/doses/administration routes the "must have" information is the original opioid, its total dose in 24 hours and its route.

**Incomplete cross-tolerance** exists between opioid(s). When switching from one opioid to another, dose reductions should be considered if the patient has *stable, controlled pain*. Effective pain control may be achieved at 50-70% of the calculated equianalgesic dose.

#### Drug Allergies to Opioids

- True allergies are rare
- Opioid Categories: Each is chemically distinct and therefore no cross-sensitivity exists between them.

<b>Phenanthrenes:</b> (Morphine-Like Agonists)	Morphine, codeine, hydrocodone, hydromorphone, levophanol, oxycodone
<b>Phenylpiperidines:</b> (Meperidine-Like Agonists)	Meperidine, fentanyl, alfentanil, sufentanil
<b>Diphenylheptanes:</b> (Methadone-Like Agonists)	Methadone, propoxyphene, diphenoxylate

## Opioid Side Effects

1. Dose-dependant, responding to a dose decrease of 25-50%
2. Occurs at initiation of opioid therapy, significant dose increases and at peaks and troughs of opioid blood levels
3. Tolerance to side effects (except constipation) within days to weeks

Common Side Effects:	Less Common Side Effects:
Constipation	Urinary Retention
Sedation/Confusion	Delirium
Nausea & Vomiting	Seizures
Pruritis	Myoclonic Jerks
Respiratory Depression	

## Management of Common Side Effects

### 1. Constipation

- Bowel regimen combining a stool softener and mild peristaltic stimulant for all patients:
- Examples: senna 187mg: 2 tabs qhs; docusate 100mg + casanthranol 30mg: 1 cap qd to 2 caps tid

### 2. Sedation/Confusion

- Eliminate *non-essential CNS depressant medications*
- Try lower opioid dose given more frequently to decrease peak concentrations
- Confusion without sedation: haloperidol 0.5-1 mg PO bid or tid OR consider changing opioid

### 3. Nausea/Vomiting

- Tolerance will develop with repeated administration
- Nausea with one drug does not mean nausea with all other opioids
- Switch agents and/or use antiemetic together
- Try promethazine 12.5-25 mg po q 4-6 h prn; if slowed GI motility: metoclopramide 10mg po tid-qid; if associated with motion/vertigo: scopolamine transdermal patch

### 4. Pruritis:

- Diphenhydramine 12.5-25mg IV or 25-50mg PO

### 5. Respiratory Depression

- Highest risk = opiate-naïve (and/or frail) elderly, infants, patients with pulmonary compromise
- Must be assessed on the basis of what is normal for that patient. If needed, stop opioid and refer to “Naloxone Use.”

**Naloxone Use:** 0.1-0.2mg initially IV. Repeat doses of 0.4 to 2mg every 2-3 minutes to a total dose of 10mg. May be given IM or SC if IV route is not possible; also may be given down an endotracheal tube, using two times the IV dose.

**Onset of reversal:** within 2 minutes if given IV, longer if SC or IM

**Peak effect:** 6-10 minutes; duration of action: 1-2 hours

*Administer cautiously to patients who may have physical dependence to opioids.* Reversal will unmask pain symptoms & may precipitate an acute withdrawal syndrome.

## Combination Products:

- *No maximum daily dose of an opioid alone BUT* maximum daily dose of a combination product containing APAP or ASA. Example: Percocet 325/5mg = APAP 325mg and oxycodone 5mg (max APAP dose/day = 4000mg or 4grams)
- Opioid component often available as single, inexpensive form
- Expected benefit of the non-opioid component is usually available in a single OTC formulation
- Balance "convenience" of combination products vs dangers of individual component toxicities

**Breakthrough Pain:** Patients often have acute, “breakthrough” pain when on long acting sustained release opioids. Often immediate release (short acting) products are available of the same opioid as the long sustained-release opioid

## Calculating Breakthrough Doses:

ORAL OPIOIDS	PARENTERAL OPIOIDS
Identify 24-hr total dose & administer 10-15% q1-2h	Identify the hourly total dose & administer 25-50% q15-30min

Continuously evaluate escalating use of rescue doses as a potential indicator that the sustained-release dosing should be increased.

**Pain Consults:** There are two main services.

- The Pain Management Group (PMG): The PMG is concerned with the evaluation and treatment of acute and chronic pain. Page neurology consult resident for adult inpatient consults, otherwise call 638-8456 (ENC) or 414-5256 (MP).

*Patients with the following conditions are appropriate for referral: Chronic back and neck pain; Chronic and acute headache; Neuropathic pain; Visceral and pelvic pain; Pain of unclear etiology which requires further evaluation; Pain unresponsive to conservative management; Pain requiring complex pharmacological management; Cancer and HIV related pain; Pain requiring evaluation for interventional and neuromodulatory management*

- The Anesthesia Interventional Pain Management Center: Appointments are made by calling 638-6965, Monday-Friday 8:30-5:00pm.

*The most commonly performed interventional procedures are: Lumbar/Thoracic/Cervical Epidural Steroid Injections; Lumbar/Thoracic/Cervical selective nerve root blocks (diagnostic and therapeutic); Lumbar/Stellate ganglion blocks for sympathetic mediated pain/complex regional pain syndrome Type I (RSD); Trigger point injections with local anesthetic and/or steroid injection for myofascial pain syndrome (various muscle groups); Selective diagnostic/therapeutic peripheral nerve block with local anesthetic and/or steroids; Intravenous lidocaine infusion for various neuropathic pain syndromes; Celiac plexus block with local anesthetic for diagnostic/therapeutic purposes; Hypogastric plexus block with local anesthetic and/or steroid injection for diagnostic/therapeutic purposes; Placement of intrathecal catheter for infusion of narcotics/Baclofen (trial before permanent implant)*

## Managing Pain in the Pediatric Population

**"PainFree Measures by Protocol"** when ordered by MD or NP allows the nurse to choose and administer pharmacologic and non-pharmacologic measures per the guideline below considering age, developmental level, type of procedure, and medication characteristics.

### PainFree Measures by Protocol:

- 1) **Sucrose:** 0.2-2cc (per gestational age) PO x1 dose given 2 minutes prior to procedure for patients up to 3 months of age.
- 2) **EMLA Cream:** apply to skin at least 1 hr before needlestick or circumcision per dosing guidelines for patients over 32 weeks gestation.
- 3) **ELA-Max Cream:** apply to skin at least 20-30 min prior to needlestick per dosing guidelines for patients 12 months and older.
- 4) **Numby Stuff:** 1cc of Iontocaine™ or lidocaine 2% with epinephrine 1:100,000 by iontophoresis prior to procedure for children over 1 year of age.
- 5) **Vapocoolant spray:** spray on skin (up to 10 seconds for Ethyl Chloride™, Fluorimethane™, or 2-3 seconds for Fluro-Ethyl™) immediately prior to needlestick.

## PEDIATRIC ANALGESIC GUIDELINES

**Acetaminophen** 15 mg/kg/dose PO q4h or 20 mg/kg/dose PR q6h (**Max** 75mg/kg/day or 4 grams/day)

**Choline magnesium trisilate** 25mg/kg/dose PO q12 hours (**Max** 1500mg/dose)

**Codeine** 0.5-1 mg/kg/dose PO q4 hrs (**Max** 60mg/dose)

**Ibuprofen** 10 mg/kg/dose PO q6 hrs (**Max** 800 mg/dose)

**MS Contin** See conversion chart on reverse. For young patients, the usual safe dosing range= 0.3-0.6mg/kg/dose PO Q12hr

**Oxycodone** 0.1-0.2 mg/kg/dose PO q4 hours (**Max** 10 mg/dose)

## PEDIATRIC SIDE EFFECT MANAGEMENT

**Diphenhydramine** 1 mg/kg/dose PO/IV q6 hours (**Max** 50mg/dose)

**Ondansetron** < 10 kg=0.1 mg/kg/dose, ≥10kg = 1mg/dose IV q8h (**Max** 1 mg/dose)

**Prochlorperazine** if >2y of age, 0.1 mg/kg/dose PO/PR q6 hours (**Max** 10 mg/dose)

**Promethazine** if >2y of age, 0.5 mg/kg/dose q4h (**Max** 25mg/dose)

- Pain CQI Committee 12/02
- Adapted from the Pain Guideline approved by P&T