

**ASSESSMENT**

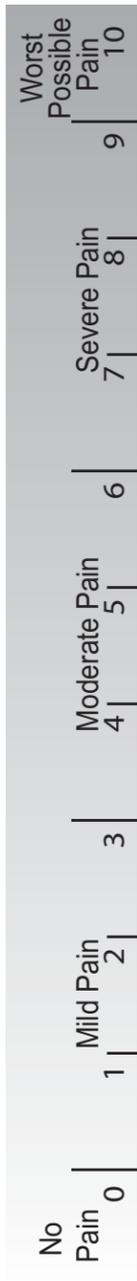
- Preoperative patient evaluation is necessary.
- Requires systematic assessment using standardized pain assessment tools preoperatively, at scheduled intervals postoperatively, in response to new pain, and prior to discharge for optimal results.
- The components of a good assessment will vary but should include both pain and its impact on function.

**PAIN ASSESSMENT COMPONENTS**

- Pain attributes: (onset, intensity, duration, location, description, factors that alleviate/exacerbate)
- Behavioral manifestations of pain
- Impact of pain
- Current and past treatments for pain
- Patient's expectations for pain relief

**Assessing Pain Intensity**

1. Ask the patient to rate their pain on a scale of 0-10, (0 = No pain and 10 = Worst possible pain).
2. Ask patient "What is your current pain level?"
3. Ask patient "What was your worst/best pain level?"
4. Assess and document intensity at each painful site.
5. Ask about the quality of the pain (e.g. dull, burning, stabbing, shooting, etc.).
6. Reassess frequently in the same consistent manner.



**Pre-operative patient assessment**

- Chief complaint
- Medical history
- Surgical history
- Past pain history
- Medications
- Allergies
- Psychosocial history
- Physical exam

**Post-operative patient assessment**

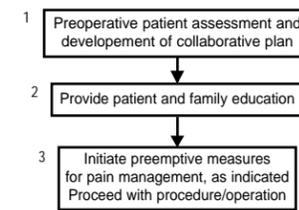
- Assess pain level
- Assess side effects:
  - nausea/vomiting
  - pruritus
  - numbness/weakness
- Interference with function:
  - sleep
  - deep breathing
  - moving
- Patient overall satisfaction

**SIDE EFFECT MANAGEMENT**

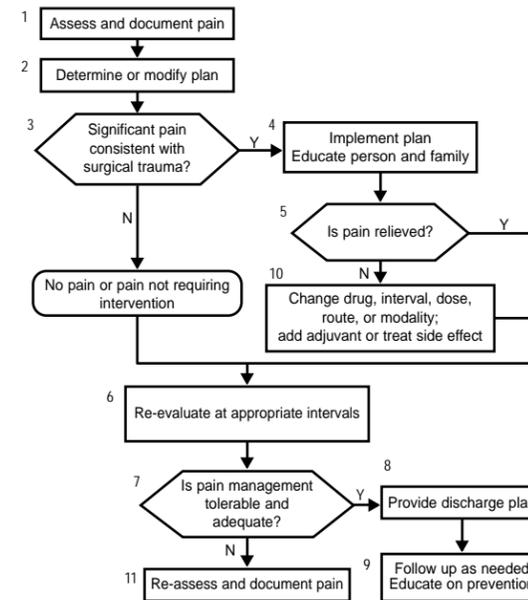
<p><b>Sedation</b></p> <ul style="list-style-type: none"> <li>• Determine etiology</li> <li>• Decrease dose</li> <li>• Increase interval</li> <li>• Stop medication</li> <li>• Consider reversal agent</li> </ul>	<p><b>Itching</b></p> <ul style="list-style-type: none"> <li>• Consider allergic reaction</li> <li>• Decrease analgesic dose</li> <li>• Consider antipruritic</li> <li>• Change analgesic</li> <li>• Change route</li> </ul>
<p><b>Nausea</b></p> <ul style="list-style-type: none"> <li>• Determine etiology</li> <li>• Decrease dose</li> <li>• Change route</li> <li>• Add anti-nausea agent</li> <li>• Change analgesic</li> </ul>	<p><b>Respiratory Depression</b></p> <ul style="list-style-type: none"> <li>• Determine etiology</li> <li>• Decrease dose</li> <li>• Increase interval</li> <li>• Stop Medication</li> <li>• Consider reversal agent such as naloxone and titrate to effect</li> </ul>

**VA/DoD Clinical Practice Guideline for Management of Postoperative Pain POCKET GUIDE**

**PREOPERATIVE MANAGEMENT**



**POSTOPERATIVE MANAGEMENT**



VA access to full guideline: <http://www.oop.med.va.gov/cpg/cpg.htm>  
 DoD access to full guideline: <http://www.cs.amedd.army.mil/Qmc>  
 Sponsored & produced by the VA Employee Education System in cooperation with the Offices of Quality & Performance and Patient Care Services and Department of Defense.

April 2002



**INTERVENTION**

- Intervention should be multimodal and individualized for the particular patient, operation, and particular circumstances. Understanding the range of available interventions and considerations of the type of surgery are essential to provide safe and effective pain management.
- In most instances, more than one intervention will be needed for successful pain management. Selection is determined by balancing the advantages, disadvantages, contraindications, and patient preferences.
- Pharmacologic interventions:
  - ◊ Main classes of medication: opioids, NSAIDs, local anesthetics
  - ◊ Contemporary delivery systems (PCA instead of intermittent dosing via IM or SC) and techniques (neuraxial) are required to improve post operative pain control and patient satisfaction.
- Non-Pharmacologic Interventions
  - Cold
  - Heat
  - Massage
  - Exercise
  - Immobilization/Rest
  - Transcutaneous Electrical Nerve Stimulation (TENS)
  - Hypnosis
  - Distraction
  - Relaxation
  - Positioning
- A discharge plan should be in place prior to discharge, include a plan for continued pain management, and be communicated to patients and those caring for them.

**PATIENT EDUCATION**

- Education of the patient and those involved in their care is central and should:
  - ◊ Provide realistic expectations about pain, the postoperative plan, the discharge plan, and expected outcomes
  - ◊ Decrease emotional distress, enhance coping skills and enable patient participation

**EVALUATION**

- Evaluation of the balance between pain control and side effects should be routine, timely, and specific. The effect of changes in response to inadequate pain or side effects should be evaluated in a timely fashion.

**Equianalgesic Table: Commonly Used Opioid Analgesics - Information and Conversion Tables**

Drug	Duration <sup>1</sup> (hrs)	Equianalgesic doses (mg) <sup>2,3</sup>		Dosage forms available	Cost per day <sup>4</sup>	Comments
		IM	PO			
Codeine	4-6	120	200	Codeine alone: 15, 30 60 mg tablets Combination tablets: Codeine APAP APAP w/codeine #2: 15mg 300mg APAP w/codeine #3: 30mg 300mg APAP w/codeine #4: 60mg 300mg Combination liquid (per 5ml) 12mg 120mg	Codeine alone: 13 tablets/day = \$\$\$\$  APAP w/codeine #3: 13 tablets/day = \$\$	A milder or less potent opioid; must be metabolized to the active metabolite (morphine) Available alone or in combination with aspirin or acetaminophen Do not exceed: 4 grams APAP/day (13 tablets per day) Do not exceed: 2 grams APAP/day with moderate alcohol use (2 beers/day)
Fentanyl (IV)	1-2	0.1	---	Injection: 50 µg/ml	0.2mg IV/day = \$	
Hydrocodone	4-6	---	30	Tablets contain hydrocodone/APAP in amounts varying from 2.5 to 10mg hydrocodone and 500 to 750mg APAP. Elixir contains 7.5/500mg per 15ml Consult your local formulary for available dosage formulations.	8 tablets/day = \$	Available only in combination with APAP. Do not exceed 4 grams APAP/day.
Hydromorphone	4-5	1.5-2	7.5	Injection: 1, 2, 4, & 10 mg/ml Tablets: 1, 2, 3, 4 & 8 mg	4mg IV/day = \$\$\$\$ 20mg PO/day = \$\$	No long acting dosage forms are currently available.
Meperidine	2-4	75	300	Injection: 25, 50, 75 & 100 mg/ml	150mg IV/day = \$\$\$	SHOULD NOT be used in chronic pain due to short duration of action and accumulation of toxic metabolite, normeperidine, which can cause CNS excitation and seizures.
Methadone	4-8	10	20	Tablets: 5 & 10mg Liquid: 5 mg/5ml, 10 mg/5ml, 10 mg/1ml	40mg/day Tablets = \$ Liquid = \$\$\$	Long half-life requires <b>5-7 days</b> between dose increases and close monitoring. Cover with short-acting agent until steady state achieved. Duration of effect increases with repeated use and cumulative effects. Do not administer "prn".
Morphine	4-6	10	30	Injection: 0.5, 1, 2, 4, 5, 8, 10, 15, 25, 50 mg/ml Preservative-free for spinal use: 0.5, 1, 10, 15, 25, & 50 mg/ml PCA syringes: 1 & 5 mg/ml, 30 ml IR tabs: 15 & 30mg CR/SR tabs/caps: 15, 20, 30, 50, 60, 100, 200mg Liquid: 10mg/5ml, 20mg/5ml, 20mg/1ml Rectal suppositories: 5, 10, 20, 30mg	20 mg IV/day = \$\$\$ PCA: = \$\$\$\$\$ IR 60mg/day = \$ CR/SR 60mg/day = \$ Liquid 60mg/day = \$\$\$ RS 60mg/day = \$\$\$	Long acting morphine is dosed every 8-12 hours. Do not administer "prn". Do not crush sustained release tablets Specify concentration of liquid on prescription
Morphine SR/CR	8-12	---	30			
Oxycodone IR	4-6	---	20	IR tablets: 5, 15, 30 mg CR tablets: 10, 20, 40 & 80 mg Liquid: 5 mg/5 ml, 20 mg/1 ml	IR 40mg/day = \$ CR 40mg/day = \$\$\$\$	Oxycodone CR is usually administered every 12 hours. Do not administer oxycodone CR "prn". Do not crush oxycodone CR tablets.
Oxycodone CR	8-12	---	20	IR combination tablets/capsules contain oxycodone/APAP in amounts varying from 2.5 to 10mg oxycodone and 325 to 650mg APAP. Consult your local formulary for available dosage formulations.	IR combination products: 8 tablets/day = \$ 8 capsules/day = \$\$	Do not exceed 4 grams APAP/day (12 tablets of oxycodone /APAP 5/325mg or 8 capsules of oxycodone/APAP 5/500mg)

APAP = Acetaminophen, CR = Controlled-release, IM = Intramuscular, IR = Immediate-release, IV = Intravenous, PCA = Patient-controlled analgesia, PO = Oral, RS = Rectal suppository, SL = Sublingual, SR = Sustained-release

**OPIOID CONVERSION INSTRUCTIONS**

1. Determine the total 24-hour dose of the current opioid.
2. Using the **equianalgesic table** (on the left), find or calculate the equivalent dose of new analgesic for the desired route of administration.
3. When converting to a different opioid, the starting dose of the new opioid should be 50% to 67% (10% to 25% for methadone) of the equianalgesic dose because of incomplete cross-tolerance.
4. Take the 24-hour starting dose of the new opioid and divide by the frequency of administration to give the new dose for the new route.
5. All patients should have breakthrough opioid available during conversion process.

**Example:**

*Patient is receiving morphine 1mg PCA q6min. He has received 30 doses over the past 24 hours.*

1. Total 24-hour dose of IV morphine is 30 mg.
2. From the equianalgesic table, we calculate that 30 mg of IV morphine is equal to 60 mg of PO oxycodone. The estimated equianalgesic dose of oxycodone is 60 mg per day.
3. 67% of 60 mg of PO oxycodone is 40 mg per 24 hours.
4. Frequency of administration is q6h (4 doses) so the starting dose of oxycodone IR would be 10 mg q6h.

**Footnotes to Equianalgesic Table:**

1. Duration of oral medication is longer than parenterally administered medications.
2. Doses that produce the same analgesic effect as 10 mg of IM morphine.
3. When switching from one opioid to another, the starting dose of new opioid should be 50% to 67% of the equianalgesic dose except when switching to methadone. When switching to methadone, the starting dose should be 10% to 25% of the equianalgesic dose. Opioid dose should then be titrated and individualized to clinical situation and patient response
4. Relative cost expressed as long acting morphine 30 mg PO q12h or equivalent per day. (See box at right)

TYPICAL IV PCA DOSING REGIMENS			
DRUG	LOAD	BOLUS/DEMAND	LOCKOUT
Fentanyl	15 to 75 µg (0.5 to 1 µg/kg)	10 to 75 µg	4-6 min
Hydromorphone	0.1 to 0.5 mg (0.002 to 0.01 mg/kg)	0.1 to 0.5 mg	6-8 min
Meperidine	25-50 mg (0.5 to 1 mg/kg)	5 to 25 mg	6-8 min
Morphine	0.5 to 3 mg (0.01 to 0.06 mg/kg)	0.5 to 3 mg	6-8 min

*Lower doses are recommended for opioid-naive patients and mid-range doses for opioid-tolerant patients. Avoid starting opioid-naive patients on the higher end of the dosing range*

**NONSTEROIDAL ANTI-INFLAMMATORY DRUGS**

Generic	Starting dose	Max/day	Cost
Acetaminophen	650 mg PO Q4-6H	4000 mg	\$
Aspirin	650 mg PO Q4-6H	4000 mg	\$
Celecoxib	200 mg PO BID	400 mg	\$\$\$\$
Etodolac	200 mg PO Q8H	1200 mg	\$
Ibuprofen	400 mg PO Q4-6H	3200 mg	\$
Indomethacin	25 mg PO Q8H	200 mg	\$
Ketorolac	10 mg PO Q4-6H	40 mg	\$\$\$
Naproxen	250 mg PO BID	1500 mg	\$
Naproxen Na	275 mg PO BID	1650 mg	\$
Piroxicam	20 mg PO QD	20 mg	\$
Rofecoxib	50 mg PO QD	50 mg	\$\$\$\$
Sulindac	150 mg PO BID	400 mg	\$
Salsalate	1000 mg PO TID	3000 mg	\$

**Footnote to Equianalgesic Table & Nonsteroidal Anti-Inflammatory Drugs**

Treatment costs are expressed only in general, relative terms; consult local references for exact figures. Delivery considerations may supercede drug costs, and technique advantages may overrule cost considerations. \$ = Very low; \$\$ = Low; \$\$\$ = Moderate; \$\$\$\$ = High; \$\$\$\$\$ = Very high.

# VA/DoD Clinical Practice Guideline for Management of Postoperative Pain

## POCKET GUIDE

### OPIOIDS

- Safe and effective for postoperative pain control and can be used safely with other agents and techniques.
- No significant risk of addiction with short-term use for postoperative pain management. Addiction is often a concern of patients and should be addressed preoperatively.
- There is no ceiling dose for agonist opioids; dose should be determined by patient response.
- Respiratory depression should not be a concern if appropriate dosing, routes, and frequency are used with adequate patient monitoring.
- Opioids have significant side effects that can be modified by dose, route, and adjunctive agents.
- Longer-acting and safer alternatives to meperidine exist. If meperidine is indicated, its use should be restricted to the recovery room or limited to less than 24 h, in doses less than 600 mg/24 h.

### ACETAMINOPHEN (APAP) & NSAIDS

- APAP & NSAIDs are effective for postoperative pain, but are often not sufficient as sole agent for major surgery.
- APAP & NSAIDs often decrease opioid requirement and improve analgesia.
- NSAIDs often increase bleeding time.
- For patients who are unable to tolerate routine use of NSAIDs, APAP can also be used as an opioid-sparing adjunct.
- Avoid the use of NSAIDs in the following situations:
  - Hypersensitivity to NSAIDs
  - Peptic ulcer disease
  - Significant renal impairment.
  - Ongoing bleeding

### LOCAL ANESTHETICS

- Are effective when administered by local, regional, epidural or intrathecal injection or infusion.
- In combination with other agents (e.g., opioids), may have prolonged duration of action.
- Allergic reaction occur mainly with the ester local anesthetics.
- Patients with cardiac disease, hypothyroidism, or other endocrine disease may be more susceptible to toxic effects of local anesthetics.

### GLUCOCORTICOIDS

- Are potent anti-inflammatory agents used as adjunctive agents for short term prevention of certain types of postoperative pain.
- Dexamethasone has antiemetic effects that may be beneficial in management of postoperative nausea or vomiting (PONV).
- May increase risks of infection and delayed wound healing.

### PATIENT EDUCATION

#### Questions to ask the patient:

- Have you been told how your pain will be managed postoperatively?
- What experience do you have with postoperative pain relief?
- What are your concerns about pain medication and pain relief?
- Do you have any questions about your postoperative pain management plan?

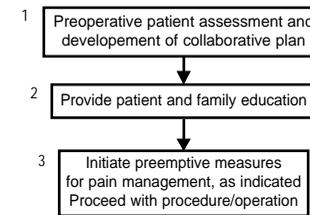
#### Questions to answer for the patient:

- What is pain?
- Why is pain control important?
- Can pain be relieved?
- If I am taking pain medications already, does it make a difference?
- How can I help the doctors and nurses “measure” my pain?
- What is an appropriate goal for pain relief?
- When should I ask for pain medication?
- How soon after I take medicine should my pain be relieved?
- Will I become addicted to the pain medicine?
- How can my pain be controlled?
- What medications are used for pain control (which am I going to have)?
- How will my pain medications be given?
  - Education—learning about the operation and the expected pain
  - Relaxation—e.g., abdominal breathing, jaw relaxation
  - Physical agents—e.g., cold, heat, massage, exercise
  - Distraction—e.g., music, videos, humor
  - Hypnosis—focused attention state
- What should I report to my caregivers (nurse, doctor)?
  - Previous drug reactions and allergies
  - Conditions such as stomach ulcers, kidney/heart/liver/bleeding problems
  - All current medications including
    - over the counter drugs,
    - herbal remedies,
    - vitamins, and
    - nutritional supplements
  - If pain medicine does not work
  - Plans to drink alcohol, operate machinery or drive a car
  - All side effects of pain interventions

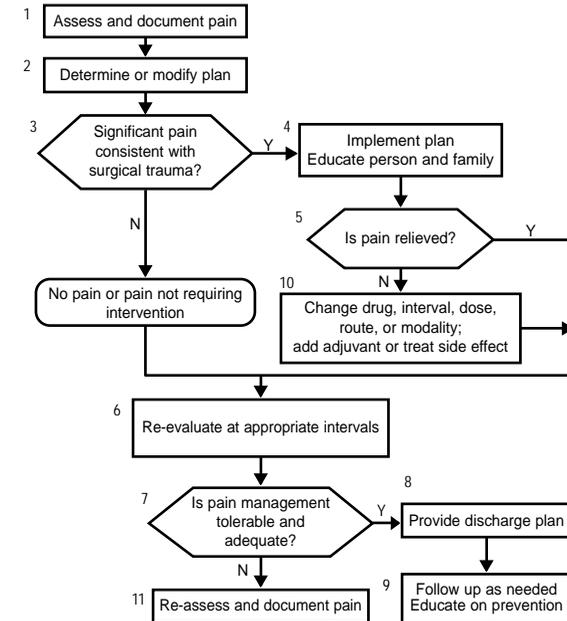
*Give the patient: Written plan for pain management*

### PHARMACOLOGIC INTERVENTIONS & PATIENT EDUCATION

#### PREOPERATIVE MANAGEMENT



#### POSTOPERATIVE MANAGEMENT



SUMMARY TABLE: SITE-SPECIFIC PAIN MANAGEMENT INTERVENTIONS											
Type of surgery by body region	Pharmacologic Therapy (Route)							Non-Pharmacologic		Comments	
	PO	IM	IV	Epidural	Intrathecal	IV PCA	Regional	Physical	Cognitive		
<b>1. Head and neck</b>											
Ophthalmic	<i>OP, NS</i>	OP, NS	OP, NS	--	--	RARELY	<b>LA</b>	C		X	If risk/actual bleeding, avoid NS
Craniotomy	OP, NS	<i>OP, NS</i>	<i>OP, NS</i>	--	--	OP	LA				If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS
Radical neck	OP, NS	OP, NS	OP, NS	--	--	<i>OP</i>	LA			X	
Oral-maxillofacial	<i>OP, NS, CS</i>	OP, NS, CS	OP, NS, CS	--	--	OP	LA	<b>C, I</b>		X	
<b>2. Thorax-noncardiac</b>											
Thoracotomy	OP, NS	OP, NS	OP, NS	<b>OP, LA</b>	OP, LA	OP	<b>LA</b>	C,	<b>T</b>	X	If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS
Mastectomy	OP, NS	OP, NS	<i>OP, NS</i>	OP, LA	OP, LA	<i>OP</i>	LA	C,	T	X	
Thoracoscopy	OP, NS	OP, NS	<i>OP, NS</i>	OP, LA	OP, LA	OP	LA	C,	T	X	
<b>3. Thorax-Cardiac</b>											
CABG	OP, NS	OP, NS	<b>OP, NS</b>	RARELY	OP	OP	RARELY				If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS
MID-CAB	OP, NS	OP, NS	<i>OP, NS</i>	RARELY	OP	OP	LA			X	If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS
<b>4. Upper abdomen</b>											
Laparotomy	OP, NS	OP, NS	OP, NS	<b>OP, LA</b>	OP, LA	<i>OP</i>	LA	<b>E,</b>	<b>T</b>	X	Opioids may impair bowel function If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS
Laparoscopic cholecystectomy	<i>OP, NS</i>	<i>OP, NS</i>	<i>OP, NS</i>	RARELY	RARELY	OP	LA	<b>E,</b>	<b>T</b>	X	Opioids may cause biliary spasm
Nephrectomy	OP, NS	OP, NS	OP, NS	<b>OP, LA</b>	OP, LA	OP	LA	<b>E,</b>	T	X	
<b>5. Lower abdomen/pelvis</b>											
Hysterectomy	OP, NS	OP, NS	OP, NS	OP, LA	OP, LA	<i>OP</i>	LA	<b>E,</b>		X	Opioids may impair bowel function
Radical prostatectomy	OP, NS	OP, NS	OP, NS	<b>OP, LA</b>	OP, LA	OP	--	<b>E</b>		X	Opioids may impair bowel function If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS
Hernia	<i>OP, NS</i>	OP, NS	OP, NS	RARELY	OP	RARELY	<b>LA</b>	C,		X	
<b>6. Back/Spinal</b>											
Laminectomy	OP, NS	OP, NS	<i>OP, NS</i>	RARELY	RARELY	OP	--	C, <b>E</b>		X	
Spinal fusion	OP	OP	<i>OP</i>	RARELY	RARELY	<i>OP</i>	--	<b>E I</b>		X	Use of NS may be associated with nonunion
<b>7. Extremities</b>											
Total hip replacement	OP, NS	OP, NS	<i>OP, NS</i>	<b>OP, LA</b>	OP, LA	OP	LA	<b>C, E,</b>	<b>T</b>	X	Use of NS controversial
Total knee replacement	OP, NS	OP, NS	OP, NS	<i>OP, LA</i>	OP, LA	OP	<b>LA</b>	<b>C, E,</b>	<b>T</b>	X	Use of NS controversial
Knee arthroscope/Arthroscopic joint repair	OP, NS	OP, NS	OP, NS	RARELY	OP	OP	<b>LA</b>	<b>C, E,</b>	<b>T</b>	X	
Amputation	OP, NS	OP, NS	OP, NS	<i>OP, LA</i>	<i>OP, LA</i>	OP	<b>LA</b>	C, <b>E,</b>	T	X	
Shoulder	OP, NS	OP, NS	OP, NS	--	--	OP	<b>LA</b>	<b>C, E, I, T</b>		X	
Vascular	OP, NS	OP, NS	OP, NS	<b>OP, LA</b>	OP, LA	OP	LA	<b>C, E</b>		X	If risk/actual bleeding, avoid NS* If renal hypoperfusion, avoid all NS

### How to Use This Table

- Select operation from column 1, "Type of surgery by body region". If your operation is not exactly listed, pick one that is close to it. For example, for a patient having a colon operation the appropriate choice would be "laparotomy".
- Examine options on horizontal axis. Factors to consider:
  - Evidence rating—i.e., is it the best available?
  - Patient factors
    - patient motivation or desire
    - medical conditions (example: anticoagulation)
  - Institutional factors
    - Who will implement choice?
    - Is specialized equipment available?
    - Are the appropriate practitioners available (Example: Is physical therapy available for placement of TENS)
- Additional considerations and suggestions can be found under the pharmacologic, non-pharmacologic and intervention sections.

C = Cold; CABG = Coronary artery bypass graft; CS = Corticosteroid; E = Exercise; I = Immobilization; LA = Local Anesthetics; MID-CAB = Minimally Invasive Direct Coronary Artery Bypass; NS = NSAIDS; OP = Opioids; T = TENS; X = Use of cognitive therapy is patient-dependent rather than procedure-dependent; \* = Bleeding is not contraindication for COX-2 inhibitors  
**Indications for Use:** **Bold/Shaded:** Preferred based on evidence (OE=I; R=A); **Italicized/Bold:** Common usage based on consensus (OE=III); Plain Text: Possible Use