



PAMI learning module content will sometimes overlap due to similar topics. The PAMI website offers access to learning module handouts, pain tools, resources, websites, and recent pain news.

We welcome your feedback on all PAMI materials and are interested in how you use them to improve patient safety and clinical care.

Please email emresearch@jax.ufl.edu.

For more information please visit
<http://pami.emergency.med.jax.ufl.edu/>



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Citation for Presentation

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- ***Suggested Module Citation:*** Acute Pain Management in Emergency and Acute Care Settings, University of Florida College of Medicine - Jacksonville Department of Emergency Medicine, Pain Management and Assessment Initiative (PAMI): A Patient Safety Project, [date retrieved]. Retrieved from <http://pami.emergency.med.jax.ufl.edu/>.

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Learning Objectives

1. Define acute pain and examples of acute pain syndromes presenting to the ED.
2. Recognize the importance of treating pain while evaluating the chief complaint and determining a differential diagnosis.
3. Understand physiologic risks and benefits to analgesia.
4. Recognize targeted analgesic options for treating different types of pain.

Case Scenarios



Case 1: Traumatic Injury



LF is a 66 year old male who presents to the trauma center post “head-on” frontal motor vehicle collision in which he was the restrained driver with no loss of consciousness (LOC) reported. He was found alert but mildly confused with a GCS of 14 on scene and stable vital signs. Upon arrival in the ED he complains of pain in the right chest and left thigh. He winces in pain when moved on to a stretcher. There is obvious swelling to the left thigh and shortening of the extremity. He also has a seatbelt abrasion over the chest wall.

Patients' Vital Signs

HR	110
BP	150/110
RR	18
Temp	98.9 F
O2 sat	98% on RA

❑ What are **options** to safely treat this patient's pain?

Case 2: Headache

AS is a 45 year old female complaining of a severe headache. It began yesterday and has been steadily worsening despite taking her “normal headache medicine.” She struggles to keep her eyes open in the bright exam room and feels nauseated.



- ☐ What else do you want to know?
- ☐ What are some relevant components of the exam?

Case 3: Sickle Cell Crisis



PJ is a 22 year old African American male presenting to your ED for the 3rd time in 6 weeks complaining of 10/10 pain everywhere, worse in his extremities bilaterally. He reports no fevers or chills, worsening of his chronic mild icterus, abdominal pain or chest pain and no new injuries. His home pain medications are not working.

- ☐ What other information do you want to know?
- ☐ How will you treat his pain?

Case 4: Toothache

MB is a 31 year old female presenting with a complaint of left jaw pain. She notes left sided jaw and tooth pain for the past 2 weeks, worse when chewing or drinking cold beverages. Today the pain is 9/10. She denies any injuries to the area, rarely sees a dentist, and has no medical or dental insurance.

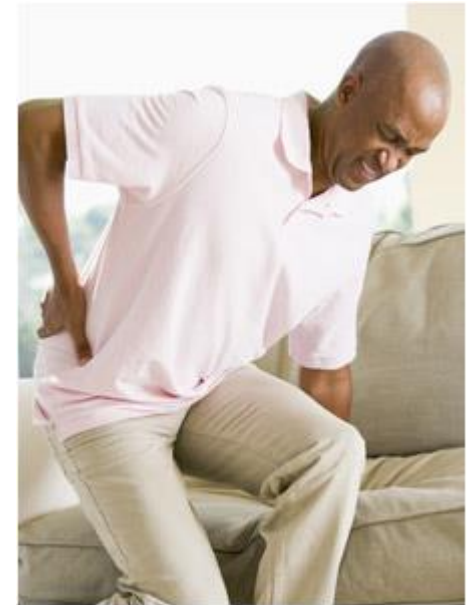
- ☐ What exam findings would worry you?
- ☐ How will you treat her pain?



Case 5: Low Back Pain

TS is a 59 year old man presenting with 10/10 low back pain. This episode began 3 days ago after helping his son move into a new apartment. He has been having trouble getting out of bed in the morning and feels some tingling down his left leg. He has had no relief from the ibuprofen his wife has been giving him.

- ☐ What components of the exam are most important?
- ☐ How will you treat his pain?



Background Information



Background Information

Acute pain is a common reason patients seek emergency care. Pain is a component of the presenting chief complaint in up to 78% of ED visits and a common reason for calling EMS.

While the provider's primary goal is to determine the **source** of pain, patient and caregiver goals are usually related to seeking pain **relief**.

All pain is **NOT** created equal

Different syndromes require different approaches including pharmacological and/or nonpharmacologic interventions for relief.

Visit the PAMI website and review the [Nonpharmacologic Management of Pain Module](http://pami.emergency.med.jax.ufl.edu/)
<http://pami.emergency.med.jax.ufl.edu/>

Acute Pain Definition

Acute pain develops in response to injury or tissue damage and generally does not last longer than it takes for normal healing to occur.

Acute pain is defined as lasting **less than 3 months**. It is a neurophysiological response to noxious injury that should resolve with normal wound healing.

Examples include:

- post-operative pain
- fractured bones
- appendicitis
- soft tissue injury

Subacute pain is a subset of acute pain present for at least six weeks but less than three months

Goals of Care



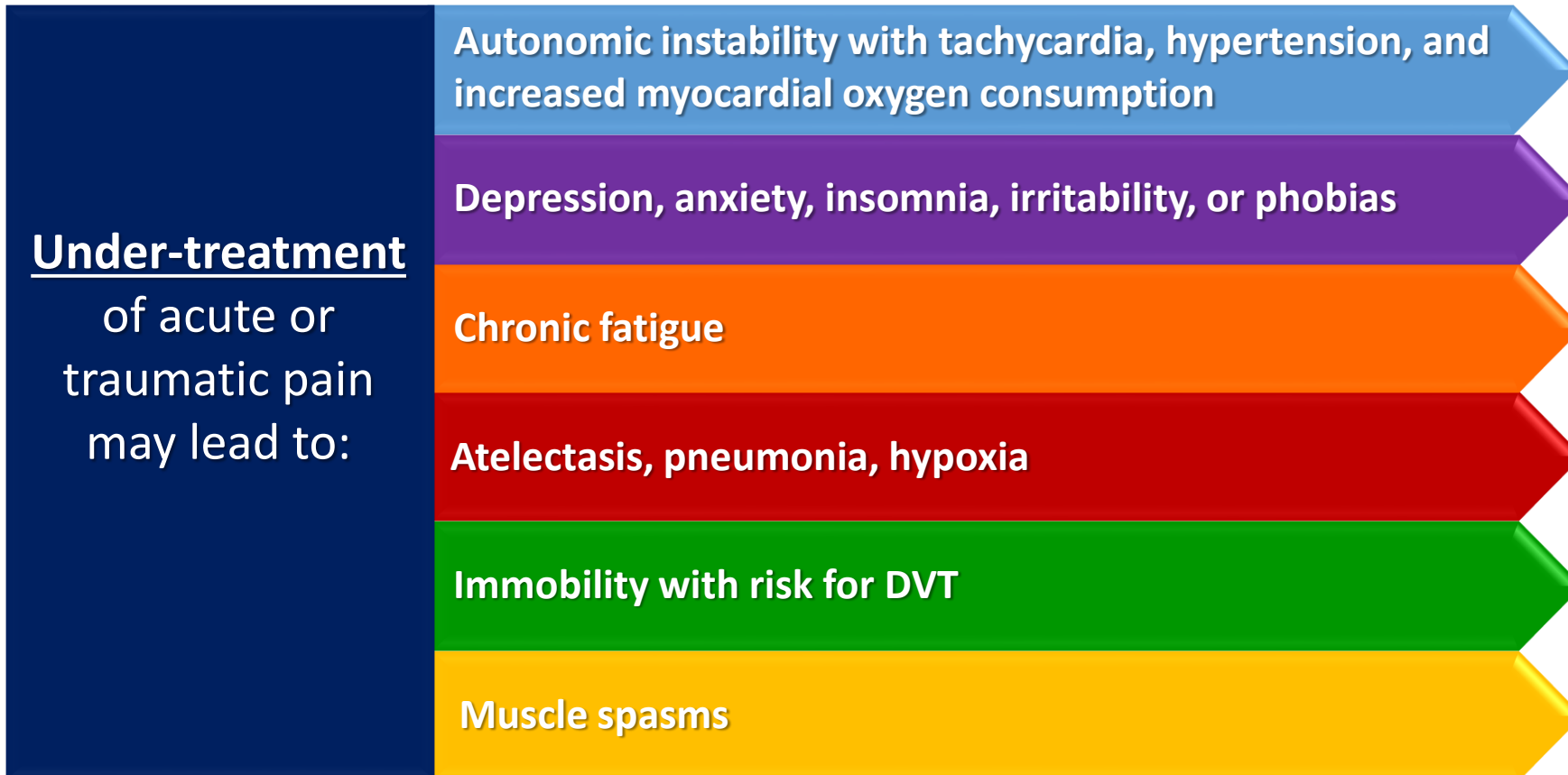
Goals of Care in Acute Pain

GOALS

- ✓ Evaluate for life and limb threatening conditions
- ✓ Acknowledge the patient's pain
- ✓ Provide adequate pain relief
- ✓ Minimize pharmacological side effects
- ✓ Reevaluate and develop a plan
- ✓ Prevent possible development of chronic pain by treating acute pain

- **Total elimination** of pain *may not* always be possible in all patients.
- **Goal** should be to bring pain to a mutually agreed upon tolerable level.
- **Patients** should be **educated** and included in the management decision process if stable.

Why is Rapid and Effective Treatment of Acute Pain Important?



Why is Rapid and Effective Treatment of Acute Pain Important?

Clinical studies provide support of a link between **uncontrolled pain** and risk for post-traumatic stress disorder.

Undertreated pain may also lead to chronic pain or pain sensitization by the mechanism of neuroplasticity.

Inadequate treatment of pain may lead to loss of job or income and temporary disability.

Pain Assessment in Acute Pain Patients- A Five Step Approach



Step 1: Obtain a Detailed, Pain-Focused Patient History



The **OPQRST-ASPN** method can be utilized to help with an initial patient assessment

O: Onset (when did it start)

P: Provocation or Palliation (what makes it better or worse)

Q: Quality (sharp, dull, crushing)

R: Region and Radiation

S: Severity (pain score)

T: Timing (type of onset, intermittent, constant)

AS: Associated Symptoms

PN: Pertinent Negatives



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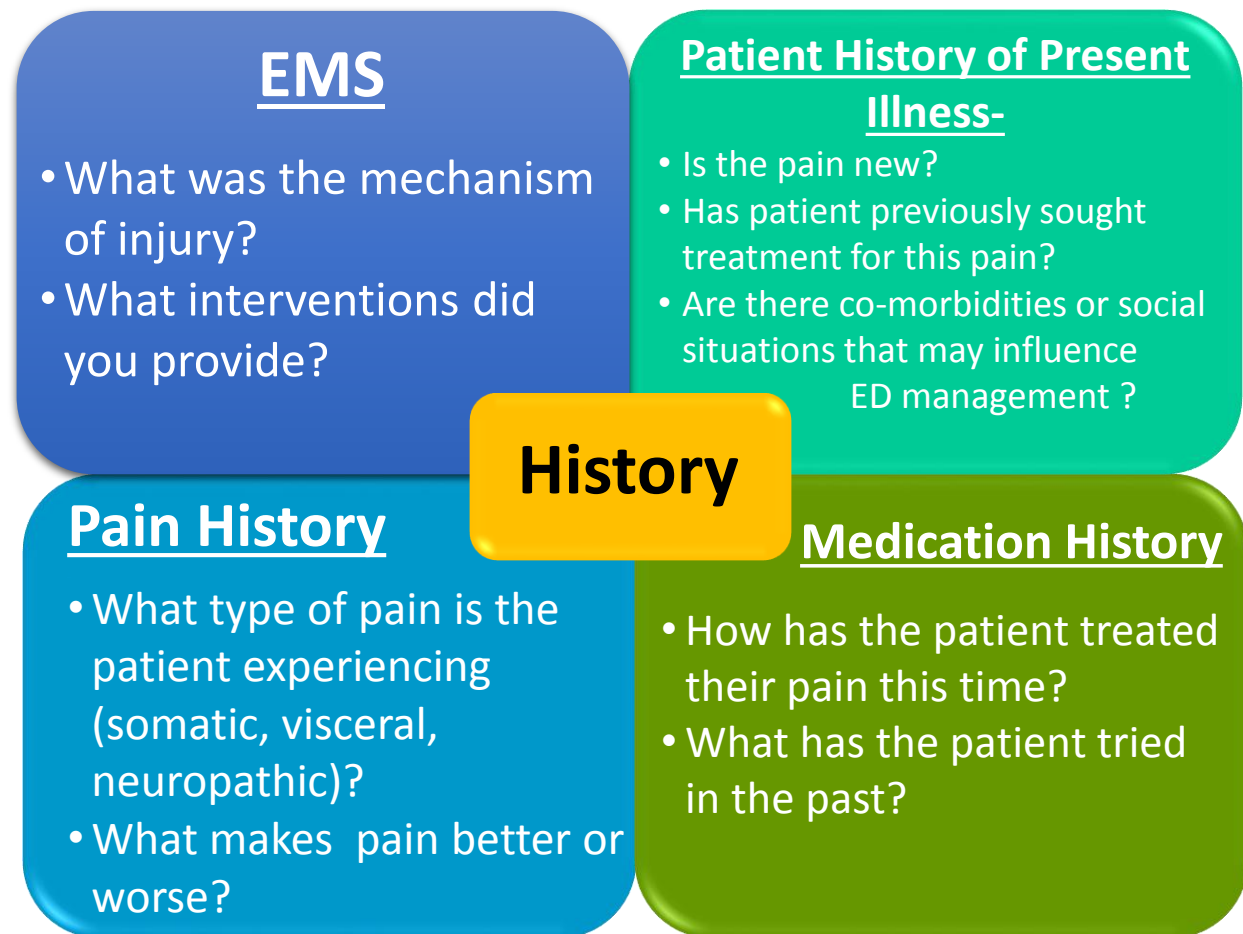
There are numerous alternate mnemonics for obtaining a pain history. Go to the [PAMI website](#) to access pain assessment tools and [The Basics of Pain](#) module for further information and a detailed description of OPQRST mnemonic.

Pain-Focused Patient History

After taking an appropriate pain history, it is important to:

1. identify the type of pain and
2. develop a differential pain diagnosis.

This will allow for a more pain-focused physical exam and tailored treatment plan.



Step 2: Classification of Pain



Classification of Pain

- When identifying pain, remember that pain can be classified by:
 - **Underlying Etiology** - refers to the source of the experienced pain.
 - **Anatomic Location** - refers to the site of pain within the body and can be divided into **somatic** and **visceral**.
 - **Temporal** - refers to the duration of the pain.
 - **Intensity** - refers to how the pain experience hurts
- Refer to [Basics Principles of Pain Management](#) module or [PAMI website](#) for additional information.
- The following chart reviews classifications of pain.

Classifications of Pain

Underlying
Etiology

Nociceptive
Inflammatory
Neuropathic
Psychogenic

Anatomic
Location

Somatic
Visceral

Temporal

Acute
Chronic
Acute on chronic

Intensity

Mild
Moderate
Severe

Step 3: Pain Focused Physical Exam



Physical Examination



Note the patient's vital signs as they can provide a clue to pain severity:

- An elevation in blood pressure and heart rate may, but not always, occur secondary to pain and inadequate control of pain. However, normal vital signs should not negate a patient's reported pain.
- Always address abnormal EMS or ED triage vital signs and be sure an initial triage pain score is documented.

Take cues from your patient:

- Observe patient's position of comfort
- Observe vocalizations (ex. crying child), facial expressions, body posture, and motor response (ex. ↑ or ↓ decreased movements)
- Observe physiological clues such as skin flushing, diaphoresis, plus vital sign abnormalities
- Look for grimace and guarding in non verbal patients

Physical Examination



- Consider the patient's baseline and current mental status
 - Are they able to effectively communicate their pain to you?
- Perform a focused exam based on history and triage including:
 - Assessment of functionality
 - Sensory exam
- Use your physical exam to evaluate for red flags and other worrisome findings such as:
 - Focal neurologic deficits
 - Vascular abnormalities
 - Associated systemic symptoms (ex: cachexia, fever)

Step 4: Use a Validated Pain Rating Scale
or Tool Based on Age, Development
Stage and Setting



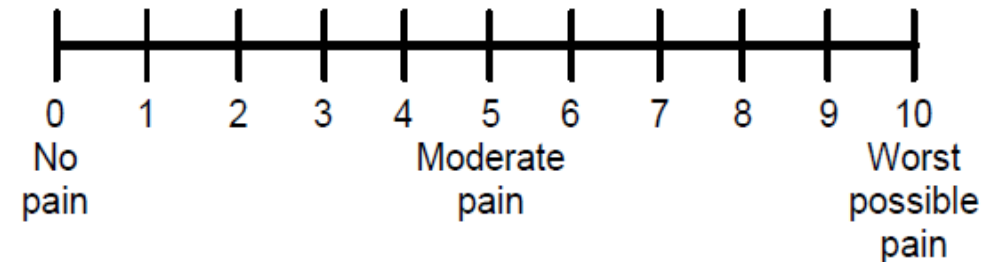
Pain Rating Scale Examples

Wong-Baker FACES Pain Rating Scale



- 0 = VERY HAPPY, NO PAIN
- 1 = HURTS JUST A LITTLE BIT
- 2 = HURTS A LITTLE MORE
- 3 = HURTS EVEN MORE
- 4 = HURTS A WHOLE LOT
- 5 = HURTS AS MUCH AS YOU CAN IMAGINE
(Don't have to be crying to feel this much pain)

0–10 Numeric Pain Rating Scale



Examples of Pain Scales

Be *consistent* in your assessment (*and reassessments*) by using the same scale.

Pain Scales*	Verbal, Alert and Oriented	Non-verbal, GCS <15 or Cognitive Impairment
<u>Adult</u>	<ol style="list-style-type: none"> 1. Verbal Numeric Scale (VNS)/ Numeric Rating Scale (NRS) 2. Visual Analogue Scale (VAS) 3. Defense and Veterans Pain Rating Scale (DVPRS) 	<ol style="list-style-type: none"> 1. Adult Non-Verbal Pain Scale (NVPS) 2. Assessment of Discomfort in Dementia (ADD) 3. Behavioral Pain Scale (BPS) 4. Critical-Care Observation Tool (CPOT)
<u>Pediatric</u>	<p>3 yo and older</p> <ol style="list-style-type: none"> 1. Wong Baker Faces 2. Oucher (3-12yrs) 3. Numerical Rating Scale (NRS) (7-11yrs) <p>8 yo and older</p> <ol style="list-style-type: none"> 1. Visual Analogue Scale (VAS) 2. Verbal Numeric Scale (VNS)/ Numeric Rating Scale (NRS) 	<p>Birth – 6 mos</p> <ol style="list-style-type: none"> 1. Neonatal Infant Pain Scale (NIPS) 2. Neonatal Pain Assessment and Sedation Scale (N-PASS) 3. Neonatal Facial Coding System (NFCS) 4. CRIES <p>Infant and older</p> <ol style="list-style-type: none"> 1. Revised Faces, Legs, Activity, Cry, and Consolability (r-FLACC) 2. Non Communicating Children's Pain Checklist (NCCPC-R) 3. Children's Hospital of Eastern Ontario Pain Scale (CHEOPS) (ages 1-7)

*This is a short list of pain scales. Determine which pain assessment tools are used by your agency or facility. Refer to the [Basic Principles of Pain Management Module](#)

Pain scales are not absolute

- Recognize limitations of pain scales.
- They are just one tool for pain assessment and management. These should be used along with information from the patient's history, exam, and response to treatment.
- None have been developed specifically for the ED or pre-hospital settings.

To learn more about the limitations of pain scales refer to the [Basic Principles of Pain Management Module](#)



Step 5: Treatment and Re-assessment

Treatment of Acute Pain

- How we manage acute pain continues to evolve as more information is learned about the pathophysiology of pain, as new medications are developed, and with the discovery of new pain management techniques.
- The treatment strategies discussed in this module reflect expert consensus or practice based on current literature. As new evidence is reported these strategies may change.
- Refer to the [PAMI website](http://pami.emergency.med.jax.ufl.edu/) for the latest information on pain management.
 - <http://pami.emergency.med.jax.ufl.edu/>

PAMI Pain Management and Dosing Guide

- The **PAMI Pain Management and Dosing Guide** is a free tool for use by health care providers in hospital, EMS or acute care settings and should be used as general guide when managing pain in pediatric and adult populations.
- The guide provides treatment options for opioids, non-opioids, procedural sedation, nerve blocks, and IV/IM/IN/topical administration. It includes a step-wise approach to pain, patient safety considerations as well as nonpharmacologic interventions. To take a tour of the dosing guide, [click here!](http://pami.emergency.medjax.ufl.edu)
- A free downloadable pdf of the dosing guide can be accessed on the PAMI website.

<http://pami.emergency.medjax.ufl.edu/resources/dosing-guide/>

The image displays a collage of pages from the PAMI Pain Management & Dosing Guide. The top page features the PAMI logo and the title 'Pain Management & Dosing Guide'. Below the title is a flowchart illustrating the step-wise approach to pain management. The subsequent pages contain detailed tables for dosing various medications, including opioids, non-opioids, sedatives, and nerve blocks. These tables specify the drug name, concentration, and dosing ranges for different patient populations and routes of administration. The guide also includes sections on procedural sedation and other interventions, providing comprehensive information for healthcare providers.

Treatment and Re-assessment

- Remember to:
 - ✓ include **pharmacologic** and **non-pharmacologic** strategies
 - ✓ **reassess** after each treatment or intervention (every 15-30 mins) until *adequate* pain management is achieved; and
 - ✓ **reassess** frequently **for side effects** (hives, vomiting, etc.) and abnormal vital signs after giving medications, especially opiates
- Now we will review examples of acute pain conditions and treatment options



Types of Acute Pain Presentations

Traumatic injuries

Headache

Low back pain

Dental pain

Vaso-occlusive sickle cell crisis

Abdominal pain

Renal Colic



Traumatic Injuries



Traumatic Injuries

- Acute pain secondary to injury is a common ED and EMS presentation
- Examples include:
 - Contusions
 - Sprains
 - Lacerations
 - Fractures
 - Burns and others



Treatment Options: Traumatic Injury



- Short acting opioids (e.g. morphine and fentanyl) are still drugs of choice for acute traumatic pain.
- Route of administration should be guided by pain intensity.
 - Mild to moderate → oral medications that the patient can be discharged home with
 - Moderate to severe → place IV for opioids or other medications
 - IM route has limited role
 - Hard to titrate, variable absorption, painful, hematoma formation risk
 - Onset of action similar to oral
- Pain control should take place early and can occur in parallel with primary and secondary trauma surveys
- Stabilization of injuries may decrease pain
 - Splint, sling, etc.
- Other treatment options:
 - Regional blocks
 - Cold therapy
 - Repositioning or traction for extremity injuries
 - Distraction
 - Non-pharmacologic therapies

Headache



Background Information of Headaches in the Emergency Department

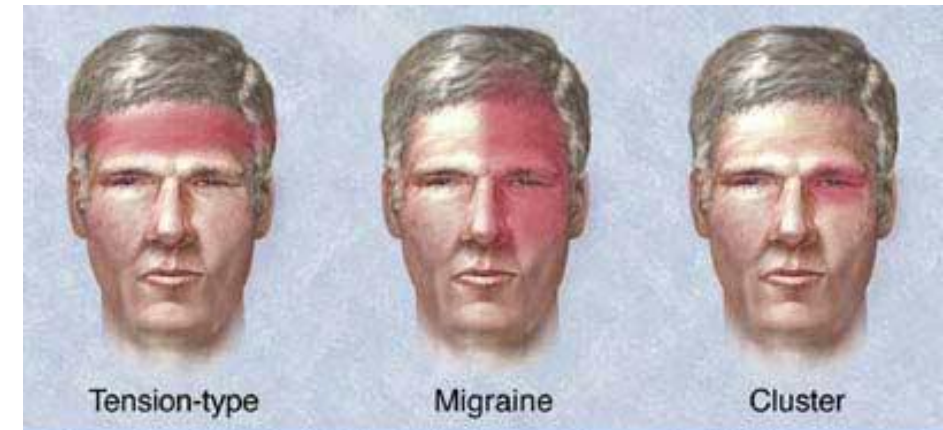
Headache accounts for **2-4%** of emergency department (ED) visits.

It is important to differentiate **life-threatening** headaches from **benign** primary headaches.

Failure to recognize life-threatening headaches may lead to fatal outcomes. Examples include subarachnoid hemorrhage, meningeal irritation, and mass.

Headache Categories

- Headaches are divided into **two** main categories
 1. Primary Headaches
 2. Secondary Headaches
- **Primary headaches** are typically more *mild* in nature
 - Examples are migraine, cluster headaches, and tension headaches
- **Secondary headaches** are typically *extremely* painful at the initial experience
 - Examples are subarachnoid hemorrhage, meningeal irritation, and acute ischemic stroke



This learning module will focus mainly on common primary headache etiologies for which pain management is usually the only intervention necessary versus secondary headaches that may require admission, intensive care or surgery.

Migraine Headache



- Pain starts off mild and then progressively increases
- Pain often affects one side of the head
- May cause nausea or vomiting, and sensitivity to light and sound

Pharmacological Treatment Options (solo or in-combination)

- | | |
|-----------------------------------|----------------------|
| ❑ Combination butalbital/caffeine | ❑ Triptans |
| ❑ NSAIDs | ❑ Ergots |
| ❑ Antiemetics: | ❑ Dexamethasone |
| Prochlorperazine/metoclopramide | ❑ Valproate |
| /promethazine/ondansetron | ❑ Magnesium sulfate |
| | ❑ Intravenous fluids |

Migraine: With or Without Aura

Migraine with aura

- Fully reversible, lasts < 60 minutes
- Visual symptoms
 - Blind spots, flashes, visual distortions
- Motor weakness
- Sensory symptoms
 - Paresthesias, aphasia
- Signs of brain stem dysfunction
 - Diplopia, ataxia, vertigo

Migraine without aura

- At least 2 descriptors
 - Unilateral
 - Moderate to severe intensity
 - Aggravated by or causing avoidance of physical activity
- At least one symptom
 - Nausea and/or vomiting
 - Photophobia
 - Phonophobia

Migraine chronification

- Approximately 4% of the US population suffer from chronic migraine
- The International Headache Society defines chronic migraine as 15 headache days per month, with 8 or more days involving migraine headaches or headaches that respond to acute migraine treatments.
- Opioids have been linked to the development of migraine chronification, ineffective response to typical migraine therapies, and ED revisits.
- Opioids are most often prescribed first by ED physicians for the treatment of headaches potentially leading patients down the road to chronic migraines.

Cluster Headache

Pain occurs quickly, strikes without warning and includes the following determinants:

- All four descriptors
 - Severe headache
 - Unilateral and ipsilateral
 - 15-180 minute duration
 - Orbital, periorbital or temporal location
- Any two transient autonomic symptoms
 - Rhinorrhea
 - Lacrimation (tearing)
 - Facial sweating
 - Miosis
 - Eyelid edema
 - Conjunctival injection
 - Ptosis



Cluster Headache Treatment

Pharmacological Treatment Options

- ❑ Oxygen
 - 100% via nonrebreathing facial mask at 12-15 L/min with in sitting, upright position for 15 min, avoid in COPD
- ❑ Occipital nerve blocks
- ❑ Prednisone
- ❑ Topirimate
- ❑ Gabapentin
- ❑ Can be bridged to verapamil



Tension-type Headache

- Most common type of headache
- Pain feels like a tight band around head, usually bilateral pain
- Pain is usually **NOT** associated with visual disturbances, nausea or vomiting
- May experience dull, aching head pain or tenderness on scalp, neck, and shoulder muscles



Pharmacological Treatment Options

- ❑ Heat/cold/massage
- ❑ Trigger point or nerve block injections
- ❑ Stretch/relaxation
- ❑ NSAIDs/acetaminophen

Primary Headaches Summary Table

	Migraine	Tension-type	Cluster
Location	Unilateral in 60 to 70 %; bifrontal or global in 30 %	Bilateral	Always unilateral, usually begins around the eye or temple
Characteristics	Gradual in onset, crescendo pattern; pulsating; moderate or severe intensity; aggravated by routine physical activity	Pressure or tightness which waxes and wanes	Pain begins quickly, reaches a crescendo within minutes; pain is deep, continuous, excruciating, and explosive in quality
Patient appearance	Patient prefers to rest in a dark, quiet room	Patient may remain active or may need to rest	Patient remains active
Duration	4 to 72 hours	Variable	30 minutes to 3 hours
Associate Symptoms	Nausea, vomiting, photophobia, phonophobia; may have aura (usually visual, but can involve other senses or cause speech or motor deficits)	None	Ipsilateral lacrimation and redness of the eye; stuffy nose; rhinorrhea; pallor; sweating; Horner's syndrome; focal neurologic symptoms rare; sensitivity to alcohol

Headache Treatment: Non-pharmacologic

- Identify precipitating factors and educate on avoidance
 - Alcohol, weather changes, diet, skipped meals, stress, hormonal changes, lack of sleep
- Learn coping skills
- Treat insomnia
- Rest in a dark quiet room

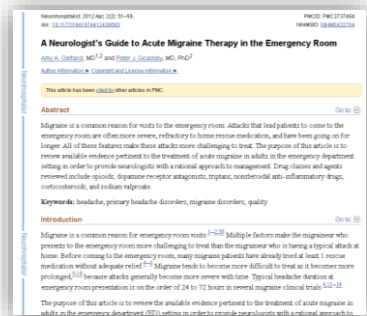


Tom And Steve via Getty Images

Treatment Advances

New treatments for headache are evolving so check current literature and national policy statements. Treatment must be balanced with the patient's co-morbidities and other medications to avoid adverse drug events.

Links to resources regarding treatment of headache in the ED



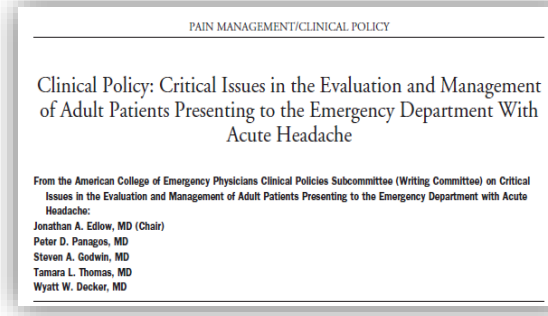
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3737484/>



<http://effectivehealthcare.ahrq.gov/search-for-guides-reviews-and-reports/?pageaction=displayproduct&productid=1324>



<http://pediatrics.aappublications.org/content/early/2015/01/20/peds.2014-2432>



<http://www.acep.org/workarea/DownloadAsset.aspx?id=8802>



<http://www.painmedicine.net/clinical-pain-medicine/article/09-15/Cleveland-Clinic-Algorithm-Reduces-Migraine-Opioid-Use-in-ED/33453/ses=ogst>

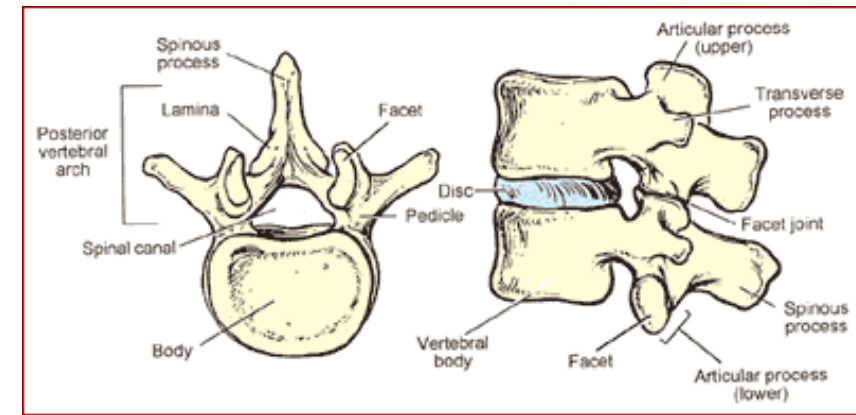
Low Back Pain (LBP)



Background Information

- Back pain is the second most common symptom-related reason for clinician visits in the United States.
- Up to **84%** of adults have low back pain at some time in their lives.
- Back pain affects millions of individuals often resulting in missed work and financial consequences.
- There are **two** types of low back pain:
 1. **Subacute** low back pain is commonly defined as back pain lasting between 4 and 12 weeks and
 2. **Chronic** low back pain >12 weeks.

Low Back Pain



- There are many conditions that cause acute LBP not related to trauma.
- Low back pain can be a forerunner of dangerous “cannot miss” diagnoses:
 - leaking abdominal aortic aneurysm, epidural abscesses, impending spinal cord compression and others
- Pain can come from facet joints, ligaments, bones or discs
- As with headache, this module will address more common sources of low back pain:
 - radiculopathy, muscle spasm, compression fracture and others



Differential Diagnosis for Acute Non-traumatic Low Back Pain

<p>Simple Causes</p> <p>Muscular and ligamentous strains and sprains</p> <p>Isolated sciatica (posterolateral disc herniation)</p> <p>Spine stenosis</p>	<p>Non-Spine Related Causes*</p> <p>Aortic disease: dissection, aneurysm, ulceration, and aortitis</p> <p>Genitourinary disease: ureteral colic, renal infarction and tumor, and prostatitis</p> <p>Gastrointestinal causes: pancreatitis and pancreatic cancer, penetrating peptic ulcer, cholecystitis, and cholangitis</p> <p>Retroperitoneal hemorrhage</p> <p>Systematic infections, including endocarditis, psoas abscess, and other localized abscess</p>
<p>Serious Causes</p> <p>Cancer related</p> <ul style="list-style-type: none"> Epidural metastatic disease Intradural metastatic disease Intramedullary tumor <p>Infection related</p> <ul style="list-style-type: none"> Spinal epidural abscess Vertebral osteomyelitis Infectious discitis <p>Spinal epidural hematoma</p> <p>Central disc herniation causing cauda equina syndrome</p>	<p>*These lists include more common or more dangerous causes in each category and does not provide an inclusive list of diagnoses.</p>

Factors that Increase Low Back Pain

- **Social** and **physiological** factors that increase the risk of developing low back pain include:
 - smoking, obesity, older age, female gender, physically strenuous work, sedentary work, a stressful job, job dissatisfaction and psychological factors such as anxiety or depression.
- **Physical** and **genetic** factors that increase risk of low back pain:
 - damaged, bulging, or torn discs, arthritis affecting joints of the spine, bony growths on vertebrae that crowd nearby nerves, a vertebra out of place, narrowing in the spinal canal, tumor or infection (rare).

Evaluation of Back Pain

- While it may not be possible to define a precise cause of low back symptoms in the ED, it is important to evaluate **three key elements** of the history:
 1. *Is there evidence of systemic disease?*
 2. *Is there evidence of neurologic compromise?*
 3. *Is there psychosocial distress that may contribute to chronic, disabling pain?*



Low Back Pain Red Flags

- History of malignancy
- Focal neurologic deficits
- Systemic symptoms (fever/weight loss)
- Age > 50 or <16 years
- History of IV drug use
- Pain worse at rest
- Immunocompromised
- Steroid use
- Recent significant infection (MRSA, etc.)



Physical Exam and Discriminatory Factors

- Is the pain worse with extension and lateral bending?
 - facet arthropathy
- Is there tenderness directly over the sacroiliac joint?
 - sacroiliitis
- Is there dermatomal radiation?
 - radiculopathy, likely from a disc bulge or herniation; though be aware of other diagnoses.



The physical examination is used to identify features that suggest imaging and/or other evaluations or consultations. Often the primary diagnosis cannot be made in the ED or in one visit.

Treatment Considerations for Low Back Pain

Unless low back pain is caused by a serious medical condition, a rapid recovery is expected, even if there is a bulging or herniated disc.

A small number of patients need surgery to treat back pain but most do well with conservative treatments.



Pharmacologic Treatment Options for Low Back Pain

There is limited data on the best pharmacological treatments for acute LBP.

- **Non-steroidal anti-inflammatory drugs (NSAIDs)**
 - Side effects – toxicities are more common in older patients
 - NSAIDs are best used in younger patients and those without significant renal, gastric, or cardiovascular comorbidities
- **Acetaminophen**
 - Recommended in patients who cannot tolerate or have contraindications to NSAIDs
- **Centrally-acting skeletal muscle relaxants (SMRs)**
 - May effectively treat pain and relieve muscle spasms however sedation is common
- **Opioids**
 - mainly used for chronic back pain
- **Oral steroids**
 - may be beneficial in patients with radicular symptoms.



Tips

All pharmacologic treatments have side effects-always review the patient's current medication list.

Nonpharmacologic Treatment Options for Low Back Pain



ED providers and staff can educate patients at discharge to

- Remain active
- Although evidence is weak, some patients benefit from heat application or massage
- Avoid extended periods of standing or sitting and lifting
- Gradual exercise as symptoms begin to get better
- Consider a physical therapy referral if pain lasts longer than 4-6 weeks
- Investigate acupuncture which has been shown to be a safe treatment for chronic back pain but results are variable with acute low back pain
- Consider meditation and yoga

Tips

If back pain becomes severe, a short period of bed rest may be necessary.

American College of Physicians Low Back Pain Treatment Guidelines

Acute and subacute pain (Strong recommendation):

- Non-pharmacologic treatments like heat (moderate quality evidence), massage, acupuncture, or spinal manipulation (low quality evidence)
- Pharmacologic treatments like NSAIDs or skeletal muscle relaxants (moderate quality evidence)

Chronic pain (Strong recommendation):

- Non-pharmacologic treatments like exercise, multidisciplinary rehabilitation, acupuncture, mindful-based stress reduction (moderate quality evidence); tai-chi, yoga, motor control exercise, progressive relaxation, electromyography biofeedback, low-level laser therapy, operant therapy, cognitive behavioral therapy, or spinal manipulation (low quality evidence)

American College of Physicians Low Back Pain Treatment Guidelines

Chronic low back pain with inadequate response to non-pharmacologic treatment (Weak recommendation; moderate quality evidence):

- First line therapy- NSAIDS
- Second line therapy- tramadol or duloxetine
- Opioids should only be considered if the patient fails first and second line therapy; the risks and realistic benefits have been discussed with the patient and it has been determined that the benefit outweigh the risks.



Tips

Treatment Tips: Low Back Pain



Tips

- Stress importance of regularly scheduled medications at appropriate doses—not just when pain becomes unbearable.
- Acute back pain may be the result of joint pain, especially in the SI joint or facet joints
 - joint injections with local anesthetic and steroids often provide pain relief and are usually performed by pain specialists
 - ask chronic LBP patients about past nerve blocks or injections
- There are many new options for persistent or severe LBP as the specialty of pain management continues to grow and new procedures become available
- Exercise, weight control and ergonomic adaptations are important components in management
- Communicate to your patient that there are treatment options for severe or persistent pain in place of or to decrease narcotic usage such as:
 - physical therapy
 - acupuncture
 - nerve blocks or facet injections

Dental Pain



Background Information

- Dental health has improved over the last decade due to:
 - Fluoride in drinking water
 - Improved diet and dental products
 - Emphasis on oral health
- Despite these improvements, cavities and periodontal disease is still high. According to National Health and Nutrition Examination Survey (NHANES) from 2009-2010, 64.7 million adults (>30 yrs) had periodontitis.
- From 2006 to 2009 ER visits for dental problems increased 16 percent. In Florida, >115,000 ER dental related visits occurred in 2010, resulting in more than \$88 million in charges.
- Many Americans do not have dental insurance coverage.



Causes of Dental Pain

A toothache is pain in or around a tooth that may be caused by:

- Tooth decay
- Abscessed tooth
- Tooth fracture or other dental trauma
- A damaged filling
- Repetitive motions, such as chewing gum or grinding teeth
- Infected gums



*Perform a comprehensive head and neck exam as serious pathology can mimic dental pain.

Symptoms of Tooth Pain

- Tooth pain may be sharp, throbbing, or constant
 - Sometimes, pain results only when pressure is applied to the area
- Swelling around the tooth
- Fever or headache
- Foul-tasting drainage from the infected tooth
- Jaw or facial swelling

Treatment Options

- NSAIDs are still the pharmacologic treatment most recommended
- Management of an abscess requires surgical drainage and antibiotics or antibiotics only if abscess is small.
- Regional anesthesia with dental blocks should be considered if there is anticipation of procedural relief of pain in the near future.
- Discharge instruction tips include avoiding extremes of hot and cold food or liquids, using a straw to direct fluid away from painful area, and avoiding hard or sticky foods.
- Severe pain may require a prescription for an opioid product until patient can be seen by a dentist or oral surgeon.*

Tips

*Keep a dental contact list in the ED. Consult oral surgery if patient has jaw swelling, fever and/or inability to swallow or eat.



**AN ESTIMATED 100,000 PEOPLE
LIVE WITH SICKLE CELL DISEASE
IN THE U.S. AND MILLIONS
AFFECTED GLOBALLY.**



Vaso-occlusive Pain Crisis

Background Information

- Sickle cell anemia is an inherited autosomal recessive disorder
- Pain is experienced from acute vaso-occlusive crisis. It occurs when microcirculation is obstructed by sickled red blood cells.
- Two types of pain
 - Acute sickle crisis
 - Chronic pain secondary to acute pain

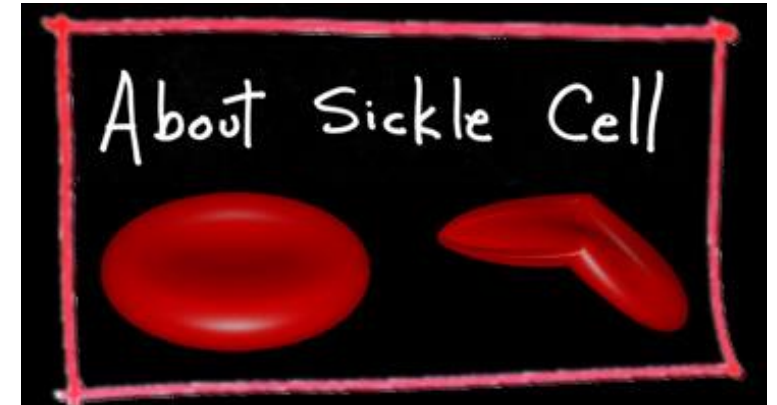


Image from Site By: L. Van Warren

Pain in Vaso-occlusive Crisis

- First symptom is acute pain
- Pain may be associated with:
 - weather conditions
 - dehydration
 - infection
 - stress
 - menses
 - alcohol consumption
 - nocturnal hypoxemia
- Pain peaks between the ages of 19 and 39 years
- Episodes can **affect any area** of the body. The most common areas are back, chest, extremities, and abdomen.



Tips

Majority of painful episodes have **NO** identifiable cause.

Assessment of Pain

There are 4 stages of a sickle cell pain crisis:

1. prodromal
2. initial
3. established
4. resolving

Many health care providers perceive that patients with SCD are addicted to opioids and exhibit drug-seeking behavior.

Though difficult to measure, the frequency of addiction in sickle cell disease patients seems to be no greater than the general population.

In sickle cell disease patients, opioid addiction ranges from .05% - 8%. Research findings indicate that under treatment of pain may lead to pseudoaddiction, early readmission and increased fear of future crisis episodes.



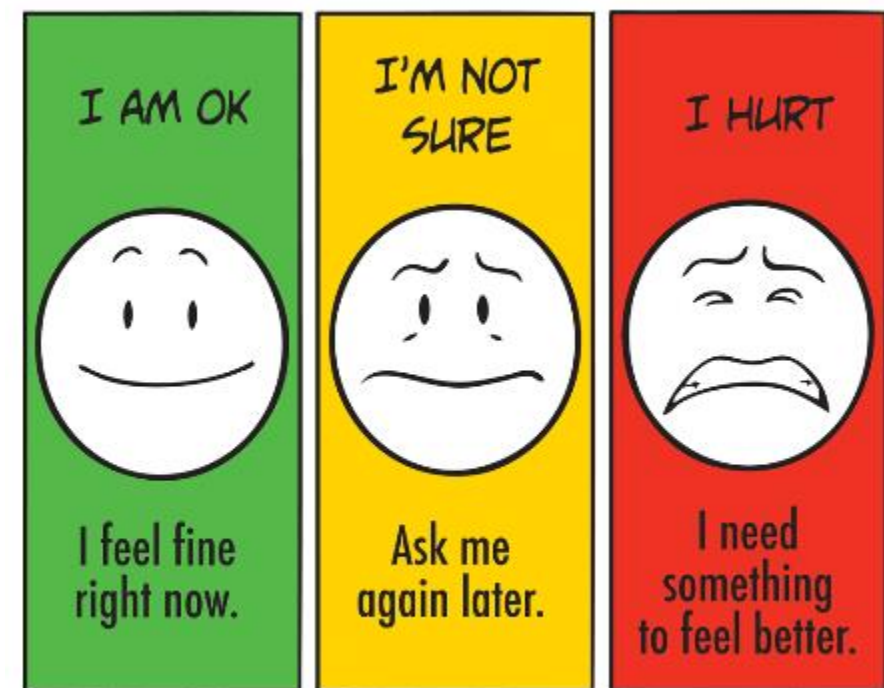
Tips

Beware of labeling, misconceptions and personal bias towards treating patients with sickle cell disease. There is no combination of clinical and laboratory findings that will prove a patient is in pain nor the degree of pain

Pain Management in the ED

Management of SCD pain in the ED is based on the following principles from the American Pain Society:

- Treatment within 30 minutes with pain medication
- A reasonable starting dose of an opioid based on knowledge of the individual's previous pain episodes and the intensity of the current pain episode
- Re-assessment shortly after opioid administration is expected to take effect
- Placebo therapy should never be undertaken, as it undermines the patient/physician relationship and the results are challenging to interpret



StoplightPainScale.com

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Treatment of SCD Pain

- IV morphine (0.1 to 0.15 mg/kg) or hydromorphone (0.015 to 0.02 mg/kg)
 - Reassess pain 15 to 30 minutes after dose is administered
 - **Severe** pain may require repeated doses of IV morphine (0.02 to 0.05 mg/kg) every 20 to 30 minutes.
 - Also consider adding an oral agent early in the treatment process to achieve steady pain control as the IV dose begins to wear off.
 - If IV access is difficult to obtain or may be delayed, consider administering opioids via intranasal or nebulized routes. Refer to the **PAMI Pharmacological Treatment of Pain Module** (<http://pami.emergency.med.jax.ufl.edu/e-learning-modules/pharmacological-treatment-of-pain/>) .
 - PCA use has shown reduced opiate requirements, reduced length of stay and reduced opiate side effects

Treatment of SCD Pain

- Heating pads
- Nonsteroidal anti-inflammatory drugs can be considered on a case-by-case basis
- Sub- dissociative dose ketamine may be an adjuvant treatment option in patients with continued pain despite adequate opioid dosing particularly in patients who have developed tolerance and opioid-induced hyperalgesia.
- If pain relief is achieved consider discharge to home on long-acting opioids with a breakthrough pain medication prescription as well appropriate follow up.

Opioid Side Effect Management

- Constipation
 - Provide stimulant laxatives to reduce risk of constipation, usually within the first 24 hours after initiating opioids
 - For more information, review [PAMI Pharmacological Treatment of Pain Module](#)
- Movement and activity
 - Encourage as soon as possible
- Pruritus
 - Diphenhydramine
 - Low-dose naloxone by continuous IV infusion has been studied to decrease pruritus without opioid adjustment



A patient should not be **false**ly labeled with an opioid allergy based on pruritus. This may result in avoidance of pain therapy that is effective.

Abdominal Pain



Background Information

5% to 10% of ED visits are related to abdominal pain.

Undifferentiated abdominal pain is the diagnosis for roughly 25% of patients discharged from the ED and between 35% and 41% for admissions to the hospital.

Patients who are discharged from the hospital with undifferentiated abdominal pain improve within 2 weeks approximately 80% of the time.

Abdominal Pain in the ED

- Abdominal pain continues to be a diagnostic **challenge and a high risk complaint** for emergency providers.
- Typically the differential diagnosis is broad, ranging from benign to life-threatening conditions.
 - Causes include medical, surgical, intraabdominal, and extraabdominal
 - Associated symptoms **often lack specificity** and **atypical** presentations of common diseases are frequent

Diagnoses You Don't Want to Miss!

- Appendicitis
- Diverticulitis
- Gallstones
- Abscess
- Bowel perforation
- Perforated ulcer
- Pancreatitis
- Ruptured ovarian cyst
- Ectopic pregnancy

Patient History

- The combination of a careful history and physical examination can often distinguish between organic and nonorganic causes of abdominal pain and is crucial for creating a focused and appropriate differential diagnosis.
- When trying to determine the etiology of abdominal pain it is important to consider:
 - patient's age
 - sex
 - past medical and surgical history
 - medications



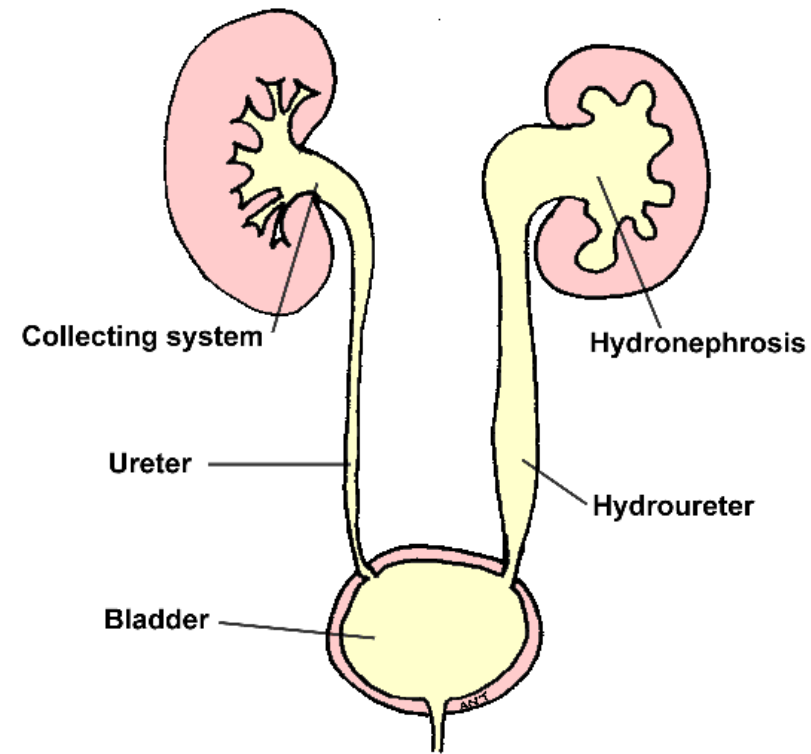
Clinicians should not base the differential diagnosis solely upon the location of pain; diagnosis and pain location often do not correspond.

Treatment

- The type of abdominal pain will guide treatment.
- Management may include one or more of the following:
 - IV fluids
 - IV pain medications such as morphine
 - Do not delay pain management while waiting on test results or consultants
 - Goal is not to completely eliminate pain but to reduce pain to a manageable level
 - Analgesics may assist in making the patient more cooperative and improve abdominal exam accuracy by minimizing voluntary guarding
 - Antibiotics
 - Imaging studies
 - Surgical consultation

Renal Colic

“Kidney Stones”



Background Information



- Renal colic and kidney stones often present to the ED with severe abdominal or flank pain.
- The prevalence of kidney stones is increasing in the US, especially in the pediatric and adolescent population. The male-to-female ratio has changed over the past 25 years, from 3:1 (male:female) to $< 2:1$.
- Kidney stones are crystals that form from chemicals in the urine. When too much of one chemical is present a stone typically develops. These stones can block urine output, causing pain, swelling and infection.

Symptoms of Renal Colic

- Pain (especially in the back, side or groin)
- Blood in the urine
- Abnormally colored urine
- Fever
- Chills
- Nausea with or without vomiting



Risk Factors

There are factors that **increase** the risk of developing renal colic and stones.

Risk factors include:

- Dehydration
- Diet high in vitamin D
- Diuretic overuse
- Family history of kidney stones
- Intestinal malabsorption (Crohn's disease, postoperative, etc.)
- Personal history of kidney stones
- Pregnancy
- Recent surgery
- Urinary tract infections
- Use of calcium-based antacids
- Use of certain medications



Treatment

There are pharmacological, nonpharmacological and surgical treatment options for renal colic.

- Initial treatment should include IV fluids, analgesic and antiemetic medications. Patients are often dehydrated from vomiting or anorexia.
- Analgesia is usually best achieved with parenteral narcotics and/or NSAIDs drugs such as ketorolac. However, these medications are not without risks.
 - NSAIDs should be used with caution in patients with renal insufficiency, CHF, active PUD/gastritis, recent stroke or myocardial infarction.

Alternative, Adjunct Treatments

There are pharmacological, non-pharmacological and surgical treatment options for renal colic.

- IV Lidocaine
 - works by halting pain transmission through sodium-channel blockade. When using lidocaine, patients should be monitored for arrhythmia, heart block, dizziness, and flushing.
- IV acetaminophen
- Heat therapy (for pain)
- Acupuncture
- Trigger point injections
- Intranasal desmopressin
- Lithotripsy (ultrasonic vibration to break down kidney stones)
- Surgery to remove large stones
- Ureteral stent placement to prevent obstruction
- Ureteroscopy

New treatments for acute pain in the ED

Many of these techniques have been well established as treatment options outside of the ED and prehospital setting. However, they can also be used in the ED as alternative and/or adjunctive treatments.

Some medications used for treating pain in the ED can be delivered via nebulizer or intranasally. However these routes are often not used due to lack of familiarity by the provider and/or lack of proper equipment.

- US guided nerve blocks
- IV lidocaine
- Trigger point injections
- Acupuncture
- Nebulized and Intranasal medications
- Sub-dissociative dose ketamine



For more information visit [PAMI Pain Management and Dosing Guide](http://pami.emergency.med.jax.ufl.edu/resources/dosing-guide/) <http://pami.emergency.med.jax.ufl.edu/resources/dosing-guide/>



Discharge Planning



Discharge Planning



- The majority of patients treated for acute pain will go home. Ensuring their safety upon discharge is extremely important.

Consider:

- *Is it safe to discharge the patient?* For example, have the administered medications incapacitated the patient? Are they able to safely ambulate? Patients who appear intoxicated or impaired following treatment cannot be discharged on their own and must not be allowed to drive.
- *How will the patient arrive home?* Does the patient have transportation and a caregiver?
- *Has the patient been counseled on proper use of new prescribed medications, changes to preexisting home medications, and potential side effects?* Will the patient be able to safely take the prescribed medications at home?
- *Has follow up been arranged if applicable?*

For more information see [PAMI ED Discharge Planning Toolkit for Pain](http://pami.emergency.med.jax.ufl.edu/resources/discharge-planning/)

<http://pami.emergency.med.jax.ufl.edu/resources/discharge-planning/>

Sample Discharge Instructions

Low Back Pain: Radicular

- Maintain your activity
- Use ibuprofen “xxx” mg regularly (with food) for relief
- For breakthrough pain, you have been prescribed “xxxxxx”. This is in addition to ibuprofen if needed for uncontrolled pain.
- Your prescribed opioid medication “xxxxx” may cause constipation, drowsiness or confusion. Do not drive, work, or operate machinery while taking this medication. Stay hydrated and add fiber to your diet to assist with constipation. Beware of walking alone or stairs as you are at risk for falls while taking this medication.
- You may require follow up with a pain specialist or a surgeon if symptoms do not resolve. Please follow up with your primary doctor to discuss possible options or referral to a pain specialist.

Safety and Risk Tips



Safety and Risk Tips



- Don't miss the “can't miss” diagnoses
- Advise 24-48 hour follow-up
- Fall prevention
 - Pain and pain medicines can increase risk of falls
- Side effects
 - Opiates and muscle relaxants are sedating
 - Be sure to anticipate and manage constipation from opiates
 - Patients with kidney disease should not take long term NSAIDs

Legal



Legal/Regulatory Aspects of Acute Pain Management

JCAHO revising pain management regulations in response to the opioid epidemic.

CMS Removes Pain Management Questions from HCAHPS Survey 2017.

The proposed new standards are that pain assessments:

- include identification of psychosocial risk factors that may affect self-report of pain;
- involve patients to develop their treatment plan and set realistic expectations and measurable goals;
- focus reassessment on how pain impairs
- physical function (eg, ability to turn over in bed after surgery);
- Monitor opioid prescribing patterns;
- and promote access to non-pharmacologic pain treatment modalities.

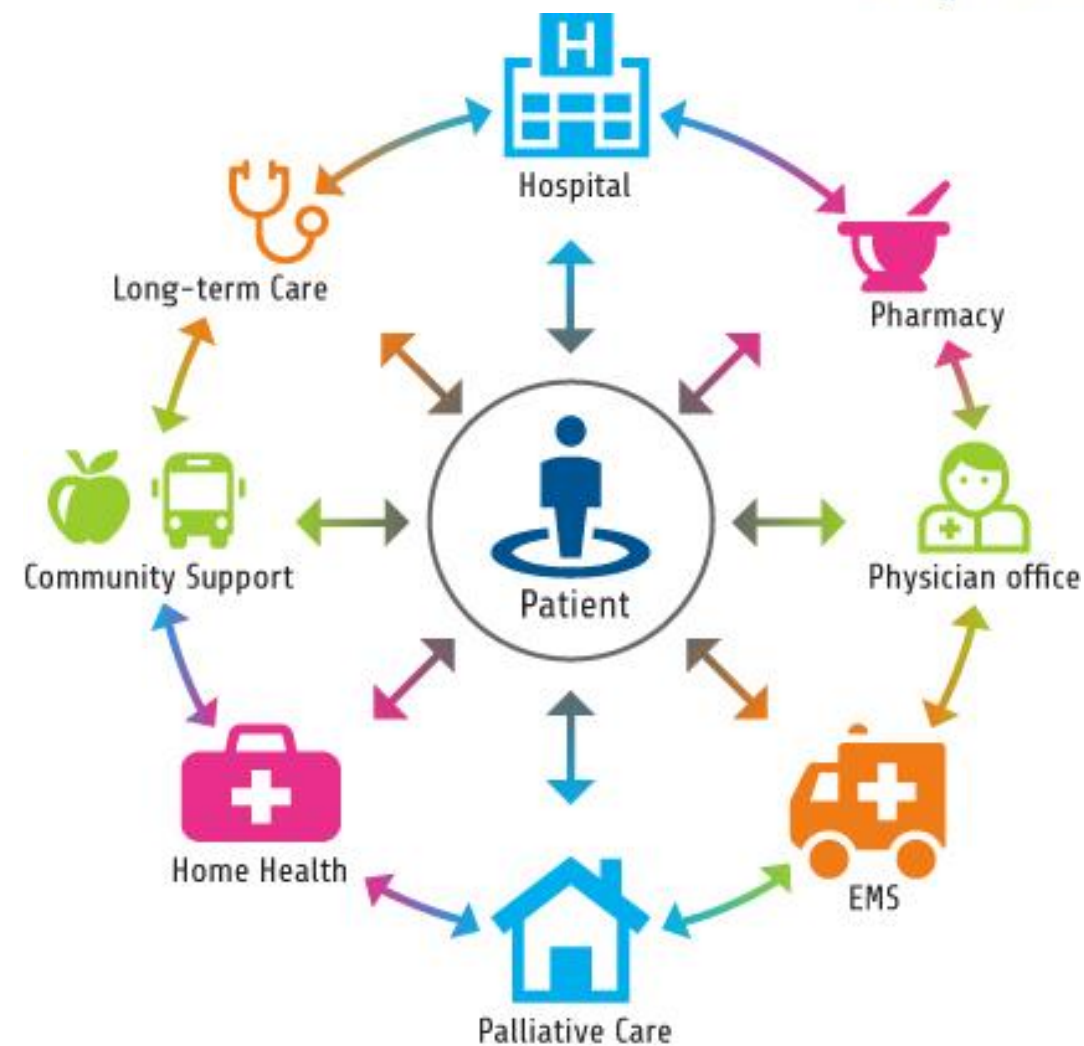
- Changes to promote safe opioid use during and after hospitalization and to prevent diversion include:
 - Identify high-risk patients;
 - Have equipment available to monitor high-risk patients;
 - facilitate clinician access to a prescription drug monitoring program (PDMP) data bases and encourage PDMP use prior to prescribing opioids;
 - and educate patients and families regarding the safe use, storage, and disposal of opioids.

For more information visit:

www.jointcommission.org/topics/pain_management.aspx

See PAMI Legal and Risk module and website resources

Transition to Care



Transition to Care-Medications

- For patients being transferred to a group setting or care facility, the receiving facility needs to know the last dose of pain medication that the patient received as well as the plan for further use.
- In Florida, there are guidelines regarding medication reconciliation in ED patients discharged to nursing homes.

Department of Elder Affairs

Completing the “Medical Certification for Nursing Facility/Home- and Community Based-Services form”

http://elderaffairs.state.fl.us/doea/cares_3008ppp.php

Institute for Healthcare Improvement

How-to Guide: Improving Transitions from the Hospital to Home Health Care to Reduce Avoidable Rehospitalizations

<http://www.ihl.org/resources/Pages/Tools/HowtoGuideImprovingTransitionsfromHospitaltoHomeHealthCareReduceAvoidableHospitalizations.aspx>

Case Discussions



Case 1: Traumatic Injury



What are options to safely treat this patient's pain?

LF is a 66 year old male who presents to the trauma center post “head-on” frontal motor vehicle collision in which he was the restrained driver with no loss of consciousness (LOC) reported. He was found alert but mildly confused with GCS 14 on scene and stable vital signs. Upon arrival in the ED he complains of pain in the right chest and left thigh. He winces in pain when moved on to a stretcher. There is obvious swelling to the left thigh and shortening of the extremity. He also has a seatbelt abrasion over the chest wall.

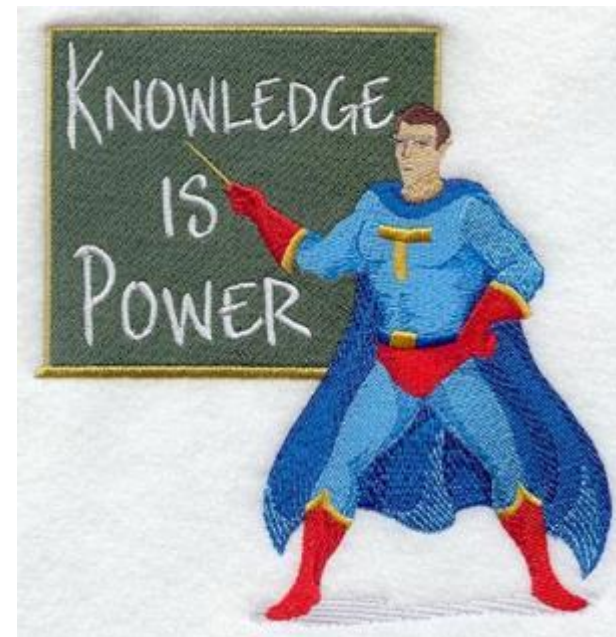
- VS = HR 110, BP 150/110, RR 18, T 98.9, and O2 sat 98% on RA.

- To fully evaluate LF he is given fentanyl 75mcg. This minimizes his leg pain, maintains stable hemodynamics and allows for imaging to be obtained.
- LF's trauma assessment includes a CXR, pelvis XRAY, CT of the chest and XRAY of the left femur and knee. These reveal a displaced left femur fracture.
 - You maintain traction on the affected limb and place a traction pin which significantly decreases his pain, stabilizing him for surgical intervention.

Case 1: Knowledge Check Question

“My orthopedic colleagues always cringe when I prescribe NSAIDs.”
Why?

- A. NSAIDs aren't sufficient for the pain from a fracture
- B. NSAIDs impede bone healing**
- C. NSAIDs can cause heart attacks
- D. More than one of the above



Case 1: Knowledge Check Discussion

Can NSAIDS delay bone healing in fractures?

- Several animal studies have shown delayed bone healing with both NSAIDS and COX 2 selective inhibitor.
- Most of these studies used high doses of NASIDs for a prolonged time period
- Few clinical studies have been done with humans and therefore data is lacking regarding this subject
- Although these medications can help with sparing opioid use, until more information is available it may be prudent to use caution when prescribing NSAIDS to patients with fractures, especially for prolonged time periods.

Case 2: Headache

What else do you want to know?

What are some relevant components of the exam?

AS is a 45 year old female complaining of a severe headache. It began yesterday and has been steadily worsening despite taking her “normal headache medicine.” She struggles to keep her eyes open in the bright exam room and feels nauseated.

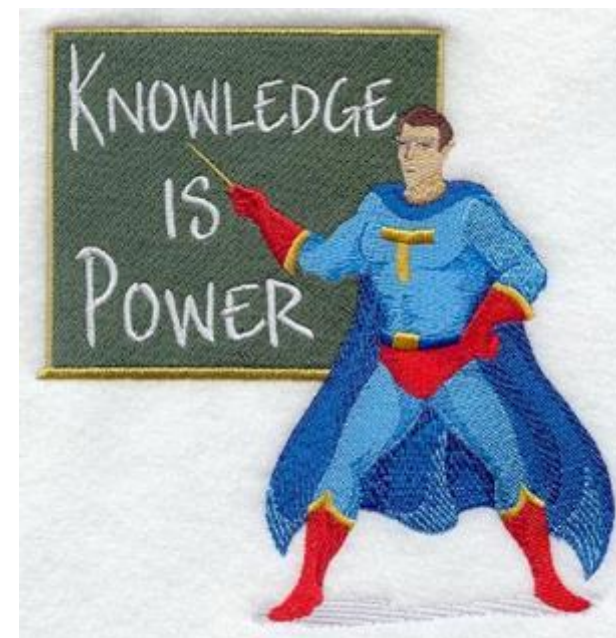


- AS reports similar headaches in the past. This headache started gradually in the middle of a work day and has progressively worsened. She has associated photophonophobia and nausea and thus hasn't been able to take her own medicine at home for relief. She has had no URI or other infectious symptoms and denies any focal neurologic deficits.
- On exam she appears uncomfortable and prefers to keep her eyes closed. She is neurologically intact with a normal pupil exam and normal IOP. She is afebrile with mild hypertension and mild tachycardia.
- You diagnose your patient with migraine without aura and provide abortive therapy with a serotonin agonist or an antidopaminergic such as Compazine.
- Upon discharge you discuss avoidance of precipitating factors including alcohol, stress, sleep deprivation and missing meals.

Case 2: Knowledge Check Question

“I was always told I had to give diphenhydramine (Benadryl) with prochlorperazine (Compazine) for migraines.” Why?

- A. Symbiotic function of the two medicines
- B. Prevention of akathisia**
- C. Many people are allergic to Compazine, this is preventative
- D. None of the above



Case 2: Knowledge Check Discussion

- While Compazine and Reglan(metoclopramide) are known to cause akathisia, diphenhydramine is not empirically necessary in all patients. The rate of infusion is known to correspond to likelihood of akathisia and simply slowing down the rate of infusion may prevent the need for additional side effects including sedation.
- A study in Annals of Emergency Medicine in 2008 (BW Friedman et al) found no decrease in the rate of akathisia with the addition of diphenhydramine to a metoclopramide regimen but did note that slowing the rate of infusion to 15 minutes could help.

Case 3: Sickle Cell Crisis

PJ is a 22 year old African American male presenting to your ED for the 3rd time in 6 weeks complaining of 10/10 pain everywhere, worse in his extremities bilaterally. He reports no fevers or chills, worsening of his chronic mild icterus, abdominal pain or chest pain and no new injuries. His home pain medications are not working.



What other information do you want to know?
How will you treat his pain?

- PJ appears stoic. He rates his pain as 10/10 even after a round of medication. He reports this is the same pain he always has and denies any infectious symptoms. He has been taking folate as prescribed by his hematologist and his home dilaudid (hydromorphone) is not working. He's already had a cholecystectomy and has no history of avascular necrosis. He does not recall his last transfusion.
- On exam he has normal vital signs. He has mild scleral icterus. He can range all extremities and has no focal tenderness anywhere.
- You diagnose vaso-occlusive crisis and treat PJ with D₅ W ½ NS at a maintenance rate and equivalent IV dosing of his hydromorphone. His laboratory results reveal a baseline anemia and appropriate reticulocyte count. He has a normal chest xray and only slightly elevated bilirubin.
- PJ's pain is not resolved after three rounds of IV pain medication and he is admitted to the floor. A PCA pump is ordered to help control his pain and hydration is continued.

Debunking the Myth

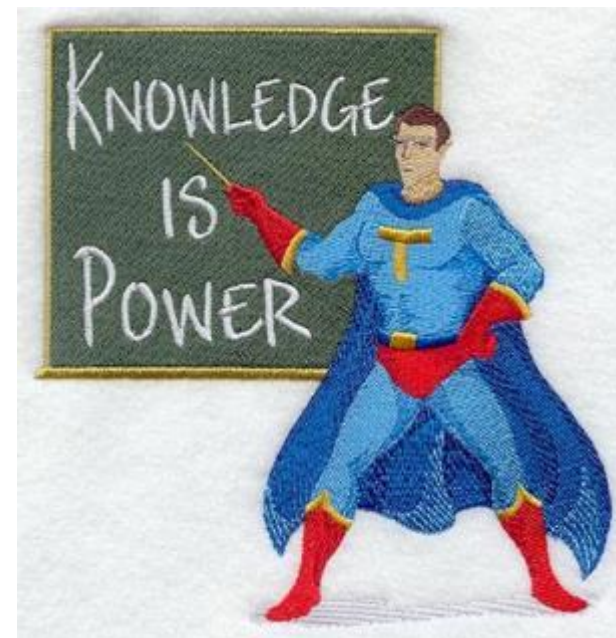
“My patient isn’t tachycardic, he can’t be in that much pain.”

- Patients with vaso-occlusive crises usually do not present with abnormal vital signs, this does not mean they are not in pain
- Ernst et al retrospectively reviewed 459 VOC episodes and found no patients with hypertension associated with VOC
- Bartolucci et al’s treatment trial of VOC pain found only one patient with tachycardia

Case 3: Knowledge Check Question

“I was always told to give oxygen and normal saline boluses to my sickle cell patients.” Which of the following is true?

- A. All sickle cell patients require oxygen treatment
- B. All sickle cell patients require aggressive isotonic hydration
- C. All of the above
- D. None of the above**



Management Pearls: Vaso-occlusive Crisis

Intravenous Fluids

- During painful episodes, patients with SCD are frequently hypovolemic and fluid intake/outtake must be carefully monitored.
- The choice of replacement fluid depends on the patient's volume status- IV fluid boluses should not be given unless the patient is severely hypovolemic (sepsis, vomiting, etc.).
- Results from the 2015 updated Cochrane review reveal inadequate data to support one specific fluid type, route, or quantity over another.
- http://www.cochrane.org/CD005406/CF_replacing-fluids-to-treat-acute-episodes-of-pain-in-people-with-sickle-cell-disease
- <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005406.pub4/abstract;jsessionid=F08161BA0EA1F76261AE3A1AD7CE0A2A.f01t03>

Oxygen

- Supplemental oxygen is only necessary if oxygen saturation is below 92%
- Unnecessary oxygen has been associated with increased transfusion requirements

Transfusion

- Avoid transfusion based solely on a number – if your patient lives at that level, hyperviscosity could induce acute chest syndrome or stroke

Case 4: Toothache

MB is a 31 year old female presenting to your ED with a complaint of left jaw pain. She notes left sided jaw and tooth pain for the past 2 weeks, worse when chewing or drinking cold beverages. Today the pain is 10/10. She denies any injuries to the area, rarely sees a dentist, and has no medical or dental insurance.



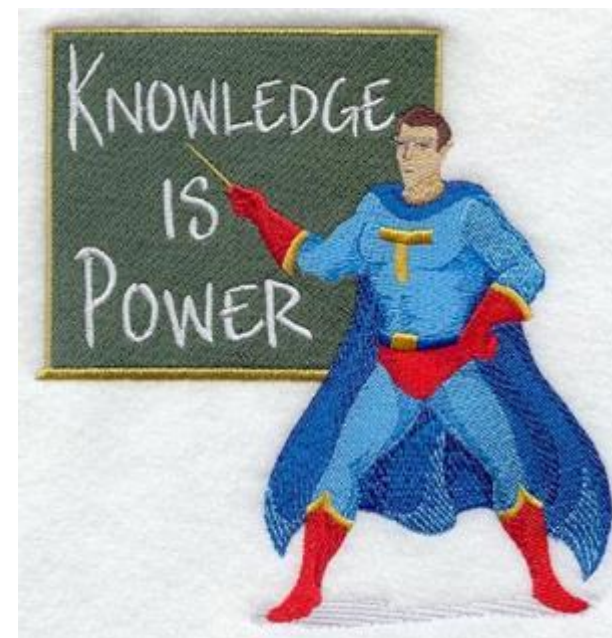
What exam findings would worry you?
How will you treat her pain?

- MB is mildly tachycardic and afebrile. She has no facial swelling or asymmetry and can fully open her mouth. You notice tenderness to percussion at tooth 19 with poor dentition throughout. No abscesses are seen and no lymphadenopathy is palpated. Her jaw is non tender and ear exam is normal.
- You diagnose the patient with generally poor dentition and a severe cavity at tooth 19.
- You perform a nerve block after which she feels complete resolution of pain and arrange for urgent dental follow up to fill the carious tooth.

Case 4: Knowledge Check Question

What type of block does this patient need?

- A. Inferior alveolar**
- B. Subperiosteal
- C. Submental



Case 4: Knowledge Check Discussion

- The mandibular bone is more dense than the maxillary bone and the nerve runs through the mandibular canal, thus mandibular teeth require inferior alveolar nerve blocks but maxillary teeth can be treated with simpler field blocks or supraperiosteal nerve blocks directly at the affected tooth.

Case 5: Low Back Pain

TS is a 59 year old man presenting with 10/10 low back pain. This episode began 3 days ago after helping his son move into a new apartment. He has been having trouble getting out of bed in the morning and feels some tingling down his left leg. He has had no relief from the NSAIDs his wife has been giving him.



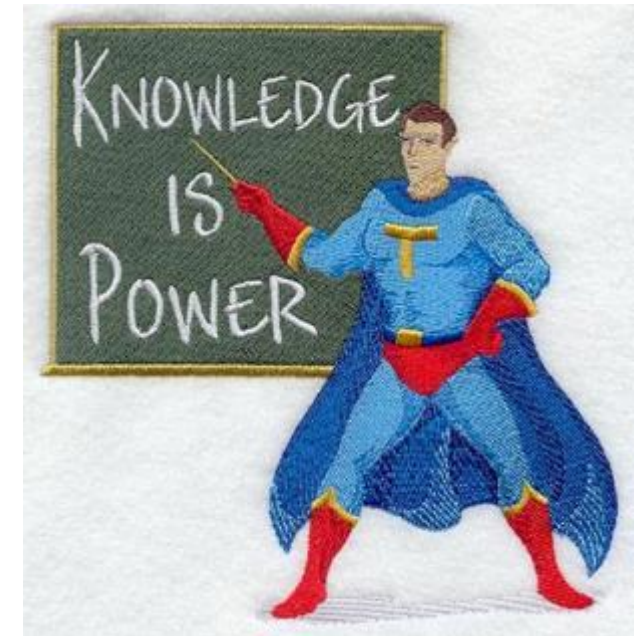
What components of the exam are pertinent?
How will you treat his pain?

- TS has had no fevers, chills or weight loss. He has no history of malignancy or intravenous drug use.
- On exam he is afebrile and normotensive. He has no spinal tenderness, no evidence of scoliosis, a positive straight leg raise on the left but normal strength, sensation and reflexes in both lower extremities. He has normal rectal tone. After pain relief, his antalgic gait resolves.
- You diagnose lumbosacral radiculopathy without evidence of cord compression.
- You prescribe a short course of opiate therapy for break through pain in conjunction with continued non-steroidal therapy and recommend light activity and a heating pad. Before he leaves you describe the signs of cord compression ensuring the patient knows when he should return emergently for care.

Case 5: Knowledge Check Question

Which is more specific for lumbosacral radiculopathy?

- A. Straight-leg raise
- B. Crossed straight-leg raise**



Case 5 Knowledge Check Discussion

- A straight-leg raise test is positive for lumbosacral radiculopathy when pain radiates below the ipsilateral knee when the leg is raised between 30 and 60 degrees.
- The crossed straight leg raise is positive when pain radiates down the contralateral leg.
 - This is a highly specific test

Summary



Summary

- The optimal method for treating a patient's pain depends upon the type and origin of the pain and if possible the diagnosis.
- Manage a patient's pain in parallel with seeking a definitive diagnosis or at least while eliminating the dangerous diagnoses.
- There are numerous options for treating acute pain from opiates and NSAIDs to regional blocks, physical therapy, and repositioning. Consider all your options when formulating a treatment plan as a multifaceted approach typically works best when treating pain.

Summary of Tips, Pitfalls & Controversies

- Treat your patient's acute pain based on the presenting clinical syndrome
- Be on the lookout for can't miss diagnoses
- Be aware of the side effects of your medication choices
- Know the law and hospital policy in your place of practice – there are limits in quantity and type of opioid you can prescribe and the indications



PAMI learning module content will sometimes overlap due to similar topics. The PAMI website offers access to learning module handouts, pain tools, resources, websites, and recent pain news.

We welcome your feedback on all PAMI materials and are interested in how you use them to improve patient safety and clinical care.

Please email emresearch@jax.ufl.edu.

For more information please visit
<http://pami.emergency.med.jax.ufl.edu/>