Nonpharmacologic Management of Pain in Adults and Children

Updated June 2016
PAMI learning module content will sometimes overlap due to similar topics. The PAMI website offers access to learning module handouts, PAMI Pain Management Guide, 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.

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This module includes pediatric, adult and special populations and is primarily focused on emergency care providers, but may also be useful for providers in hospitals and other acute care settings.

Additional materials and resources can be found in the PAMI Procedural Sedation and Pediatric Pain Modules
Learning Objectives and Module Outline
Learning Objectives

• Discuss the importance of nonpharmacologic pain management and the consequences of inadequately treated pain.
• Define nonpharmacologic treatments for pain.
• Become familiar with nonpharmacologic techniques and how they are used as part of a multimodal treatment approach to managing pain in the ED, EMS and other settings.
• Understand how developmental and cognitive levels may influence the approach to pain management.
Module Outline

1. Background Information
2. Patient Assessment
3. Nonpharmacologic Pain Treatment in Emergency Settings
   a. Cognitive-Behavioral Techniques
   b. Physical (Sensory) Techniques
4. Pain in Pediatric Populations
5. Pediatric Nonpharmacologic Therapies
6. Patient Safety Considerations
7. Incorporating Nonpharmacologic Treatment into Practice
8. Summary
9. Additional Resources
Case Scenarios
Adult Case Scenario

Rescue arrives at the residence of an 85 year-old female who fell on the stairs in her home. Medics perform a quick assessment and determine that her left ankle is swollen and tender. She appears anxious and in pain. Her pain is reported as a 10/10.

They immobilize her ankle and establish an IV. During transport the patient begins to cry and states “now my children will make me move out of my house and go into a nursing home”.

What other treatments and techniques can be used to address this patient’s anxiety and pain in addition to IV medications?
Adult Case Scenario Discussion

- Nonpharmacologic options to be considered include:
  - distraction,
  - splinting,
  - elevation of the affected extremity
  - ice packs (if available).
- Interactive distraction has been shown to reduce anxiety up to 25%.
- Distraction through conversation can be used while performing the secondary assessment during transport to the hospital.
- Conversation starters include family, hobbies, sports, etc. Explain where you are taking the patient and offer to call a family member or friend.

The patient is handed off to the ED team. Treatments and techniques started in the field are continued in the ED and the patient’s anxiety and pain improves to a 2/10.
Pediatric Case Scenario

Rescue is called to the house of a 4 year old boy who cut his forehead on the edge of a table. The boy who was calmly sitting in his mother’s lap now begins to cry, throws his favorite toy, and pulls away when paramedics try to assess him.

What can be done to help calm the child in order to perform further evaluation of the injury?
Pediatric Case Scenario Discussion

The following nonpharmacologic measures can be helpful in EMS and ED settings when dealing with anxious children who also may be in pain:

1. **Interactive distraction**- showing a lighted toy, singing a song
2. **Comfort positioning**- allowing the child to sit in caregiver’s lap
3. **Using developmentally-sensitive language**— “You are brave” (offers praise and encouragement) instead of “I am sorry” (exacerbates distress) or “Don’t cry.”

Through use of these techniques, paramedics are able to complete their assessment. The child has a 4 cm laceration to his forehead without other injury and a normal level of consciousness. These techniques and others will be discussed throughout the module.
Upon arrival to the ED they are greeted by the treating team. While examining the child the ED physician comments, “That cut is pretty deep. It’s going to need stitches. Don’t worry, it will only hurt a little. You won’t remember any of it after we put you to sleep”. He tells the nurse to start an IV and leaves the room.

Is the physician’s language developmentally-sensitive?
What unintended consequences may occur?

Other than procedural sedation, what other treatment options could be used in this case?
Pediatric Case Scenario Discussion

• As mentioned previously, use of developmentally-sensitive language can help reduce and prevent anxiety. Words or phrases that are comforting to parents or an older child, may produce fear and anxiety in a younger child.

• The physician's language although intended to be comforting may produce the opposite effect and worsen the child’s anxiety.

• Intranasal and/or topical medications could be used in this child along with distraction or guided imagery to repair the laceration without subjecting him to the pain and anxiety of IV placement.

• Distraction and guided imagery will be discussed in this module along with other nonpharmacological techniques.

Background Information
Nearly 100 million (32%) adults in the United States experience acute or chronic pain.

Approximately 20 - 25% of EMS patients experience moderate to severe pain.
How Does Pain Affect Us?

- Pain is **multidimensional**, affecting people physically, psychologically, socially and spiritually.
- Patients’ responses to pain may be related to:
  - genetics, age, gender, ethnicity, socioeconomic and psychiatric factors, catastrophizing, culture, religion, previous experiences, patient perceptions, and patient expectations.
- Pharmacologic and nonpharmacologic interventions have been found to be **effective** in managing pain, particularly in the pediatric population.
- Nonpharmacologic interventions are considered to have **fewer** side-effects and tend to be **preferred** by older populations.
Patient Assessment

Determine:

- Type of pain
- Present and past pain history, management, and medications
- Developmental and cognitive level
- Past medical history
- Physical exam
Patient Assessment

• When approaching a patient with pain it is essential to perform a thorough assessment including:
  1. Type of pain
  2. Present and past pain management history: prescriptions, over-the-counter medications, herbal supplements, nerve blocks and other alternative forms of treatment
  3. Developmental level
  4. Past medical history
  5. Physical exam

• There are several methods for assessing pain, many find the OPQRST mnemonic to be a useful assessment tool.

• For more information on pain assessments and techniques visit the PAMI website at http://pami.emergency.med.jax.ufl.edu/resources/educational-materials/pain-assessment-scales/
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 is felt.
• 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
### Types of pain, mechanism, and clinical examples

<table>
<thead>
<tr>
<th>TYPES OF PAIN</th>
<th>MECHANISM</th>
<th>CLINICAL EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNDERLYING ETIOLOGY</strong></td>
<td></td>
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<tr>
<td>Nociceptive</td>
<td>The result of direct tissue injury from a noxious stimuli.</td>
<td>Bone fracture, fresh surgical incision, and fresh burn injury.</td>
</tr>
<tr>
<td>Inflammatory</td>
<td>The result of released inflammatory mediators that control nociceptive input.</td>
<td>Late stages of burn healing, neuritis, and arthritis.</td>
</tr>
<tr>
<td>Neuropathic</td>
<td>The result of direct injury to nerves leading to an alteration in sensory transmission.</td>
<td>Diabetic neuropathy, peripheral neuropathic pain, and post-herpetic neuralgia.</td>
</tr>
<tr>
<td>Psychogenic</td>
<td>Somatic manifestation of psychiatric illness or exacerbation of pain severity due to previous experience, poor coping mechanisms, social history, etc.</td>
<td></td>
</tr>
<tr>
<td>Idiopathic</td>
<td>Unknown</td>
<td>Chronic back pain without preceding trauma or obvious inciting event.</td>
</tr>
<tr>
<td><strong>ANATOMIC LOCATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somatic</td>
<td>A-delta-fiber activity located in peripheral tissues</td>
<td>Superficial lacerations, superficial burns, superficial abscess.</td>
</tr>
<tr>
<td>Visceral</td>
<td>C fiber activity located in deeper tissues such as organs</td>
<td>Uterine fibroid pain, pyelonephritis, biliary colic</td>
</tr>
<tr>
<td><strong>TEMPORAL NATURE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td>A neurophysiological response to noxious injury that should resolve with normal wound healing.</td>
<td>Acute fracture, acute knee sprain.</td>
</tr>
<tr>
<td>Chronic</td>
<td>Pain that extends beyond the time for normal wound healing with resultant development of multiple neurophysiological changes</td>
<td>Chronic low back pain, fibromyalgia, arthritis.</td>
</tr>
<tr>
<td>Acute-on-chronic</td>
<td>An acute exacerbation of a chronic pain syndrome</td>
<td>Sickle cell disease, cancer, rheumatoid arthritis, acute injury in chronic pain patient</td>
</tr>
</tbody>
</table>
Medication and Treatment History

Patients are often unaware of their prescribed medications and doses. They may not consider herbal, natural or complementary treatments as medications and therefore not disclose this information to healthcare providers.

Medication history may be difficult to obtain from adolescents, children with multiple caregivers, elderly, medicated, confused or demented patients, non-English speakers, the hearing impaired, and those incapacitated due to their presenting medical illness.

- Ask about recent medication usage including herbal and over-the-counter (OTC) medications, dose, frequency, strength, formulation and last consumption and compare to the medical record or PDMP.
- Ask about other pain related treatments such as nerve blocks, topical agents, acupuncture, and other modalities.

See the PAMI Pharmacologic Management of Pain Module and Resources.
Physical Exam

• The physical exam can provide information regarding:
  • Location of pain
  • Severity of pain
  • Functionality

• Identifying the type of pain is essential to selecting appropriate therapy

• Pain often, but not always, alters vital signs with increased HR and BP
  • Monitor vital signs to determine treatment efficacy and safety

Tips

Normal vital signs do not always indicate the patient is pain free
Nonpharmacologic Pain Treatment in Emergency Settings
What is Nonpharmacologic Pain Treatment?

**Nonpharmacologic pain therapy** refers to interventions that do not involve the use of medications to treat pain.

**Most common in hospitals are:**
- Heat/cold therapy
- Relaxation techniques (breathing exercises)
- Distraction (active and passive)
- Guided imagery
- Comfort positions
- Training and coaching
- Aromatherapy
- Empathy from healthcare provider
- Splinting

**Most common for outpatients are:**
- Physical therapy
- Self-hypnosis
- Psychotherapy
- Biofeedback
- Laughter and music therapy
- Massage
- Acupuncture
- Spinal cord stimulation
- Compressions
- Transcutaneous Electrical Nerve Stimulation (TENS)
The **goals** of nonpharmacologic interventions are to:

- decrease fear
- reduce distress and anxiety
- reduce pain
- provide patients with a sense of control
How to Choose the Most Effective Intervention?

When deciding the most effective nonpharmacologic technique, take into consideration the patient’s:

• Age
• Developmental level
• Medical history and prior experiences
• Current degree of pain and/or anticipated pain association with an ED procedure

Nonpharmacological treatments are relatively inexpensive and safe.
Nonpharmacologic therapies are typically categorized into cognitive-behavioral or physical (sensory) interventions.

This module will review the most common therapies used in ED, EMS and acute care settings.

### Cognitive-Behavioral Interventions
- Psychologic preparation, education, information
- Distraction (passive or active): Video games, TV, movies, phone
- Relaxation techniques (breathing, meditation, etc.)
- Music
- Guided imagery
- Training and coaching
- Coping statements: “I can do this” or “this will be over soon”

### Physical (Sensory) Interventions
- Positioning
- Cutaneous stimulation
- Nonnutritive sucking
- Pressure
- Hot and cold treatments
- Transcutaneous electrical nerve stimulation (TENS)

Nonpharmacologic Pain Treatment in Emergency Care Settings

One of the most **IMPORTANT** actions providers can take is **acknowledging and addressing** a patient’s pain.

Patients expect analgesia soon after arrival to the ED with 72% expecting relief.

**Multimodal treatments** are often more effective than single modality, especially in patients with chronic pain.

However, nonpharmacologic therapies are often **underutilized** in the ED.

This may be due to a **lack of knowledge and understanding** by healthcare providers about the potential roles nonpharmacologic therapies can play in mitigating pain.
Barriers to Nonpharmacologic Therapies

Providing nonpharmacological therapies to patients in ED and EMS settings may be difficult at times due to several factors:

- Perceived lack of time
- Chaotic environment
- Lack of resources or equipment
- Lack of knowledge and familiarity of techniques by providers and staff
- Perception that patients will not be amenable to nonpharmacological treatment
Barriers to Nonpharmacologic Therapies

• Providing nonpharmacologic treatments may appear to be difficult to implement in emergency settings, yet many of these techniques are already being used.
  • For example, use of heat or cold therapy, splinting and elevation are routinely done and require little effort or additional resources.

• Other inexpensive techniques such as distraction, regulated breathing or guided imagery can also be easily performed.

• Many types of nonpharmacologic techniques can be used by patients or caregivers after discharge as part of outpatient pain management.

Hot/cold packs  DistrACTION Cards  Wikki Stix
Cognitive-Behavioral Techniques
Cognitive-Behavioral Techniques

• Helps divert attention away from procedures and may be directed at the patient, caregiver or parent.

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Psychologic Preparation, Education, and Information
Psychologic Preparation, Education, Information

- Preparing the patient, caregiver or parent on what to expect and do during the procedure is an example of a cognitive-behavioral method.

- The main goal of preparation and patient education is to inform the patient about the procedure process and to start desensitizing the patient.

- As a healthcare provider, describe the preparation and procedure at an appropriate developmental level. Describe to the patient/parent what they will feel during the procedure process and the timing of events.

- The PAMI project created procedural sedation education handouts that describe what to expect before, during, and after procedural sedation.

- To download a free pdf visit http://pami.emergency.med.jax.ufl.edu/resources/educational-materials/procedural-sedation/

Tips

Preparation is a key component of reducing pain and anxiety associated with procedures.
The Art of Distraction

Active Distraction
Passive Distraction
Distraction

**Distraction** is the most common type of cognitive-behavioral method. It is an intervention that is often used to guide attention away from painful stimuli. *It is most effective when adapted to the patient’s developmental and cognitive level.*

Current research indicates that distraction can lead to **reduction** in procedure times and number of staff required for procedures, especially in children. Researchers hypothesize that children “cannot attend to more than one significant stimulus at a time.”

### Why use distraction?

- Does not require advanced training for providers.
- Works with all developmental levels.
- Involves parents and caregivers during stressful times.

### Tips

Distraction is most effective when pain is mild to moderate (it is difficult to concentrate when pain is severe)
Two Types of Distraction

1. **Passive Distraction** - attention is redirected to a stimulus or an object is presented by a healthcare professional
   - Showing a toy (kaleidoscope)
   - Storytelling
   - Singing songs

2. **Active Distraction** - encourage participation in activities during procedures
   - Blowing bubbles
   - Playing a game
   - Interacting with an electronic device

These types of distraction can be used on their own or combined together.
Conversation and Distraction

Conversation is a proven method of pain management and helps reduce anxiety and pain through distraction. Pain can be reduced by up to 25% through distraction alone.

Active distraction is better for managing pain and anxiety than passive distraction.

Conversation topic ideas: family, hobbies, vacation, sports

Distraction can change the physiological response of pain transmission in the spinal cord.

To learn more visit
To Distract or Not to Distract... That is the Question!

• Providing distraction vs. “planned alternative focus”
  • Distraction: Diverting the patient’s attention to reduce anxiety due to medical environment.
  • “Planned alternative focus”: Concept of using the patient’s volition to successfully complete procedures for sense of mastery and ownership (Mohl & Goldberger, 2014).

• Step 1– Assessing patient and family members for optimal coping
  • Is parent’s anxiety feeding into the child’s?
  • Will the parent be a helpful, calm, supportive presence?

• Step 2– Ask whether the patient needs to have attention shifted from procedure or wants to take an active part. “Would you like to watch the IV start or play ‘I-Spy’ instead?”
  • Distraction example- Playing a game on the iPad or talking about family pets or favorite movie.
  • Active Planned Alternative focus: “Can you pick out your Band-Aid- Frozen or Star Wars?” “Can you please open this alcohol wipe and help me clean your arm?”

ED or EMS Distraction Toolbox or Pain Toolkit

“Toolbox” of distraction toys or supplies - must be easy to disinfect or disposable with no small parts.

- Lighted & motion toy
- Buzzy® – cold and numbing for shots & IV
- Rubik’s cube
- Wikki Stix
- Glitter wand
- Liquid-in-motion
Managing Procedural Anxiety in Children

Your child in hospital: Techniques to help with treatments
http://contemporarypediatrics.modernmedicine.com/contemporary-pediatrics/content/tags/art-therapy/calming-kids-hospital-anxieties?page=full

Coping with Healthcare Procedures
http://www.chop.edu/health-resources/coping-healthcare-procedures#.VeXEQn1v_eI

Your child in hospital: Techniques to help with treatments
Calming kids’ hospital anxieties
Additional Resources

Distraction therapy: Hospital room designs help ease tension
http://triblive.com/lifestyles/morelifestyles/8416076-74/says-rooms-hospital

Oklahoma University: Distraction therapy aids young patients
Optional Videos:

Managing Procedural Anxiety in Children
https://www.youtube.com/watch?v=hkIEibT8chM

It Doesn’t Have to Hurt: Distraction
https://www.youtube.com/watch?v=KgBwVSYqfps
Relaxation Techniques

Progressive Muscle Relaxation (PMR)
Diaphragmatic Breathing (Belly Breathing)
Relaxation Techniques

Goal of relaxation technique is to produce the relaxation response, “a physical state of deep rest that changes physical and emotional responses to stress (e.g. decreased heart rate, blood pressure, rate of breathing, and muscle tension.”

**Progressive Muscle Relaxation (PMR)**
- Helps patients recognize difference between tensed and relaxed muscle groups

**How to Use**
- In a calm voice, instruct patient to tighten and relax muscles. Start with the forehead and gradually move down the muscle groups in the body. Example: Forehead, jaw, shoulders, back, front of legs, etc.).
- This technique can be effective as a distraction from pain and may reduce subjective pain intensity.

**Diaphragmatic Breathing (Belly Breathing)**
- Patients breathe through their bellies instead of their chest and count slowly with each breath in and out to a predetermined number. This works best with at least 8 breaths per minute.

**How to Use**
- Instruct the patient to place hands on abdomen and watch their hands rise and fall with each breath. Seeing their hands move up and down provides the patient with instant feedback.
Music Therapy
Music Therapy

• Music may have a positive impact on pain and distress for children and adults undergoing medical procedures.
• Music therapy additionally benefits parents and health care providers caring for the anxious patient.
• Many larger hospitals have music therapists or volunteers - consider asking for scheduled time in the ED or your area
Music

Multiple research studies have investigated the role music plays on pain and stress. Music may be beneficial in reducing pain, anxiety and stress in emergency departments, waiting rooms and during transport.

For Example:

• In patients undergoing IV placement, music has a positive impact on pain and may reduce distress.

• In the ED, patients experienced less distress and lower pain scores when they listened to music during procedures.

• Music is an easy and useful way to decrease the anxiety of visitors in waiting area.

• **Ways to implement:**
  • Play in waiting areas
  • Have patient select music from available electronic devices- keep a supply of disposable headphones or earbuds
NPR: Reach for Your Playlist Instead of Popping a Pill.

- A recent study found that children who choose their own music or audiobook to listen to after major surgery experience less pain.
  - For the full article visit: [http://www.npr.org/sections/health-shots/2015/06/22/415048075/to-ease-pain-reach-for-your-playlist-instead-of-popping-a-pill](http://www.npr.org/sections/health-shots/2015/06/22/415048075/to-ease-pain-reach-for-your-playlist-instead-of-popping-a-pill)
Guided Imagery
Guided Imagery

• Guided imagery helps patients use their imagination to divert thoughts from the procedure to a more pleasant experience.
  • Designed to develop a vivid image involving all senses.

• Imagery provides distraction and reduces the perception of pain by eliciting descending signals from the brain that can help block the pain signals.

Tips
Guided imagery may also be effective in reducing anxiety and pain in adults.
Guided Imagery: Options

Help the patient use their imagination to create a descriptive story. Ask questions about a favorite place, upcoming events or vacations to keep the patient engaged.

• Option 1- Instruct patient to visit a “relaxing” place, and change the image of pain or turn off pain with a “pain switch” in the brain. Ask the patient to locate the pain switch and turn down the level of pain to a more comfortable level.

• Option 2- Ask the patient to identify a “pain” color and a “comfort” color. Then, ask to the patient to breathe in the “comfort” color and breathe out the “pain” color. Or-Ask the patient to associate their pain with a color. Instruct the patient to view the painful part of their body in that color. Tell the patient to imagine shrinking, fading or dispersing the painful color, or even sending it away in a balloon.

• Option 3- Symbolic imagery can be used in adults and adolescents. For example, if a patient with severe arthritis pain presents complaining of pain in one joint, ask them to think about how the pain feels. Does it feel like a knife? If so, ask them to imagine pulling the knife out and throwing it away. Focusing on an affirmation can also help. “I am removing the knife and throwing it away”.
Guided Imagery Resources

Cleveland Clinic Guided Imagery and Heart Surgery
http://my.clevelandclinic.org/services/heart/prevention/emotional-health/stress-relaxation/guided-imagery-heart-surgery

What is Guided Imagery?


American Chronic Pain Association: Relaxation Video (free download)
https://theacpa.org/Relaxation-Guide

What is Guided Imagery?

Guided imagery is a form of visualisation that helps create a positive mental image in the mind to improve well-being. It involves focusing on a particular image, often a peaceful scenario, to help reduce stress and improve overall health. Guided imagery can be used to relax the mind and body, reducing anxiety and promoting a sense of calm.

Guided Imagery Resources

University of Michigan Health Audio Library
http://www.mcancer.org/support/managing-emotions/complementary-therapies/guided-imagery/audio-library

University of Houston Guided Imagery and Visualization Library
http://prtl.uhcl.edu/portal/page/portal/COS/Self_Help_and_Handouts/Visualization
Training and Coaching
Role of Caregivers & Parents: How Can They Assist the Healthcare Provider?

Caregivers & parents can assist in coping with painful procedures by engaging the patient through interaction and distraction.

• For example, singing, reading or holding a patient’s hand.

The ability to provide assistance, to the patient, will depend on their individual comfort level.

Parents and caregivers may be anxious or worried when their loved one is injured or in pain.

Healthcare providers may want to direct extremely anxious or distraught parents, caregivers or visitors to wait outside the room during a procedure or exam.
How Can Caregivers & Parents Assist the Healthcare Provider?

• Healthcare providers should:
  ✓ Coach and prepare the parents & caregivers for the procedure, exam, transport, etc.
  ✓ Discuss the procedure away from children
  ✓ Discuss how they can assist in their loved one’s coping ability
  ✓ Instruct patient based on cognitive and development level
  ✓ Utilize distraction techniques
  ✓ Avoid negative or vague language

The next slide reviews suggested language for healthcare providers, parents and caregivers
<table>
<thead>
<tr>
<th>Language to Avoid</th>
<th>Language to Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>You will be fine; there is nothing to worry about</td>
<td>What did you do in school today? (distraction)</td>
</tr>
<tr>
<td>(reassurance)</td>
<td></td>
</tr>
<tr>
<td>This is going to hurt/this won’t hurt (vague; negative focus)</td>
<td>It might feel like a pinch (sensory information)</td>
</tr>
<tr>
<td>The nurse is going to take some blood (vague information)</td>
<td>First, the nurse will clean your arm, you will feel the cold alcohol pad, and</td>
</tr>
<tr>
<td></td>
<td>next... (sensory and procedural information)</td>
</tr>
<tr>
<td>You are acting like a baby (criticism)</td>
<td>Let’s get your mind off of it; tell me about that movie...(distraction)</td>
</tr>
<tr>
<td>It will feel like a bee sting (negative focus)</td>
<td>Tell me how it feels (information)</td>
</tr>
<tr>
<td>The procedure will last as long as... (negative focus)</td>
<td>The procedure will be shorter than... (television program or other familiar time</td>
</tr>
<tr>
<td></td>
<td>for child); (procedural information; positive focus)</td>
</tr>
<tr>
<td>The medicine will burn (negative focus)</td>
<td>Some children say they feel a warm feeling (sensory information; positive focus)</td>
</tr>
<tr>
<td>Tell me when you are ready (too much control)</td>
<td>When I count to three, blow the feeling away from your body (coaching to cope;</td>
</tr>
<tr>
<td></td>
<td>distraction limited control)</td>
</tr>
<tr>
<td>I am sorry (apologizing)</td>
<td>You are being very brave (praise; encouragement)</td>
</tr>
<tr>
<td>Don’t cry (negative focus)</td>
<td>That was hard; I am proud of you (praise)</td>
</tr>
<tr>
<td>It is over (negative focus)</td>
<td>You did a great job doing the deep breathing, holding still... (labelled praise)</td>
</tr>
</tbody>
</table>

Child Life Services

**Child Life Specialists** are professionals who provide developmental, educational and therapeutic interventions for children and their families.

- Hospitals and clinics with significant pediatric volumes often employ child life specialists.
- Consider having other healthcare providers learn certain child life techniques.

Child Life services also include:

- Providing psychosocial preparation for tests, surgeries and other procedures.
- Facilitating medical play using special dolls, stuffed animals and medical equipment to inform and prepare child for what he/she is going to hear, see or feel.

With appropriate support, preparation, distraction, and pain management (i.e., topical analgesic), a young child may be capable of remaining still for minor procedures with minimal sedation and/or restraint.
Physical (Sensory) Interventions
Physical (Sensory) Interventions

• Typically are patient specific, used during the procedure and inhibit nociceptive input and pain perception.

<table>
<thead>
<tr>
<th>Physical (Sensory) Interventions</th>
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</thead>
<tbody>
<tr>
<td>Positioning</td>
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<tr>
<td>Cutaneous stimulation</td>
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<tr>
<td>Nonnutritive sucking</td>
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<tr>
<td>Pressure</td>
</tr>
<tr>
<td>Hot and cold treatments</td>
</tr>
<tr>
<td>Transcutaneous electrical nerve stimulation (TENS)</td>
</tr>
</tbody>
</table>
Positioning
Comfort Positioning

Comfort positions are used to reduce stress and anxiety, especially in children.

• Why use positioning for comfort?
  • Sitting position promotes sense of control for the child
  • Reduces anxiety which promotes better cooperation
  • Puts child in a secure, comforting hold
  • Promotes close, physical contact with a caregiver
  • Provides caregiver with an active role in supporting child in a positive way
  • Comfort positioning may be prohibited in trauma patients requiring neck or spine immobilization and during transport

Tips

Consider using comfort positioning during presedation procedures (e.g., IV placement)
Additional Positions

Visit the PAMI website to learn more information about comfort positions for the patient.

http://pami.emergency.med.jax.ufl.edu/resources/educational-materials/non-pharmacological-treatment-of-pain/
ONE VOICE

One voice should be heard during the procedure.

Need for parental involvement.

Educate the patient before the procedure about what is going to happen.

Validate a child with your words.

Offer the patient the most comfortable, non-threatening position.

Individualize your game plan.

Choose appropriate distraction/coping techniques to be used.

Eliminate unnecessary staff who are not actively involved with the procedure.

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Cutaneous Stimulation
Cutaneous stimulation

- Rubbing or vibration
- Applying localized pressure
- Skin to skin contact with mother or breastfeeding during a procedure reduces pain behaviors associated with painful stimuli.
Cutaneous stimulation- Buzzy®

• Buzzy is a vibrating palm-sized device with removable ice wings. Together, ice and vibration block sharp sensations. It has been studied for injections, IVs, and phlebotomy and gives similar pain relief as topical analgesic cream or spray.

• Vibration and ice create different sensations. Buzzy uses the gate control concept. When you send more motion and cold information through the brain’s “gate”, only the strongest sensations get through. This is similar to a dentist jiggling the jaw before a dental block.

• For more information visit https://buzzyhelps.com/
Nonnutritive sucking
Nonnutritive sucking

• The use of a pacifier often in conjunction with sucrose has been shown to have an analgesic effect in neonates undergoing routine venipuncture.

• It may reduce crying with infants under 6 months of age.

• Neonates have a positive psychological response (lowering of pain scores, cry duration, and heart rate variation) to oral stimulation and physical contact or touch during painful procedures.
Pressure and Massage
Pressure and Massage

• **Massage** is a useful tool that reduces pain. It can be paired with other nonpharmacologic and pharmacologic techniques to improve patient outcomes.
  - Massage can
    1. stimulate blood flow,
    2. relax tight muscles and muscle spasms
    3. promote a feeling of well-being
• **Risks**
  1. patients with blood clots or deep vein thrombosis
  2. possible nerve damage
  3. infectious skin conditions

• **Acupressure** refers to the stimulation of specific points of the body by using finger pressure.
  • This technique has been recognized by many organizations including the World Health Organization, National Institute of Health and American Medical Association.
Hot and Cold Treatments
Heat Therapy

Several studies have shown reduction in pain, anxiety, nausea and heart rate in patients treated with active warming for pain related to mild trauma, cystitis, urolithiasis, cholelithiasis, appendicitis, colitis and rectal trauma.

Heat should be applied in 20 minute time periods to affected body areas. Heat acts by:

1. increasing blood flow to skin,
2. dilating blood vessels, increasing oxygen and nutrient delivery to local tissues, and
3. decreasing joint stiffness by increasing muscle elasticity.

Tips

This is an inexpensive and easy to use therapy with minimal side effects when used appropriately.
Heat Therapy: Options & Special Populations

Options for heat therapy: Beware of extreme heat and burns
• Hot packs
• Hot water bottles
• Hot and moist compresses
• Electric heating pads
• Microwavable packs
• Wrapped chemical and gel packs
• Submerge pain body part into a warm bath

Type of injuries and populations that should avoid heat therapy:
• Infants
• Elderly
• Pregnant women
  • avoid hot tubs or situations that expose developing fetus to prolonged heat
• Individuals who have received radiation therapy
• Conditions impairing a patient’s sensation (spinal cord injury, diabetes, etc.)
Cold Therapy

**Cold therapy consists of applying a cool material or device to any part of the body.**

Multiple studies have reported that cold treatment may increase pain threshold, reduce edema and control the inflammation process.

Cold compresses may be used between 15-30 minutes time periods and two to three times per day.

When applied to the affected area, blood vessels constrict near the skin which can:

1. reduce swelling when applied right after an injury
2. relieve pain of muscle spasm or muscle tension
Cold Therapy Options

Cold therapy options include:

- ice packs
- cold gel packs
- towels soaked in ice water

These therapy options should be

1. completely sealed to prevent dripping,
2. flexible so they can conform to the patient’s body and
3. properly wrapped to prevent damage or irritation to skin.

Tips

Especially useful for sprains and fractures. An easy way to provide fast, nonpharmacologic relief is to offer an ice pack to patients.
When to Use Ice vs. Heat Therapy

• Cleveland Clinic Infographic
  • http://health.clevelandclinic.org/2014/08/should-you-use-ice-or-heat-for-pain-infographic/
Benefits Of Keeping Patients Warm

• All patients prefer to be at a comfortable temperature. Hospitals, EDs and ambulances often are cold, drafty, and without blankets.

• Cold exposure is especially important in patients with Raynaud’s syndrome or disease, collagen vascular diseases like Lupus and Scleroderma, elderly patients, and those on cardiovascular and blood thinning medications.

• 5-10% of the general population has primary or secondary Raynaud’s Disease or symptoms.

• Most hospitals and EDs keep a supply of warm blankets or warmed fluids.
Raynaud's Disease and Pain

• Raynaud's disease is a condition that causes blood vessels in the fingers, toes, nose, and ears to go into vasospasm and become constricted in response to cold temperatures or stress or even by a shift in temperature from warm to cool.
• A cold-induced Raynaud’s attack can be very painful and lead to further chronic disease and anxiety.
• Patients may need access to warm water and blankets.

5 Symptoms of Raynaud's Disease or Raynaud's Phenomenon

1. Cold fingers and toes
2. Color changes to your skin in response to cold or stress (usually white or blue)
3. Numbness or tingling in the fingers and toes (can be on the ears or nose)
4. Stinging or throbbing pain upon warming or stress relief
5. Ulcers in the tips of fingers and/or toes

*This can occur in more severe cases*
Pain in Pediatric Populations

See Pediatric Pain Module for additional information
Pediatric Populations and Patient Factors

**PAIN** is a common symptom in children, especially when presenting to the emergency department (ED).

**Assessing** pediatric pain can be challenging and requires multiple considerations such as:
- Age of child
- Level of development
- Communication skills
- Cognitive skills
- Prior pain experiences
- Associated beliefs
Pediatric Populations and Pain

Despite the frequency of pediatric pain, it is often underestimated and undertreated.

During evaluation in the ED or hospital, the child often undergoes unexpected and painful procedures in an unfamiliar environment leading to an unpleasant experience, stress and increased anxiety.

Responsibilities of pediatric health care providers are to reduce pain and anxiety as much as possible while maintaining patient safety.
Pain Early in Life

Infants and children, who experience pain in early life may show **long-term changes** in pain perception and related behaviors.

Pain treatment for pediatric populations should be **early** and **aggressive** because, like adults, severe or uncontrolled pain stimuli may lead to hyperalgesia or possibly chronic pain.
Cognitive Development

• Because young children are cognitively immature, physical comfort measures and distraction activities are more effective than verbal reasoning in helping to control their distress.

• Children do not have sufficient cognitive development to understand the perspective of strangers trying to reassure them until the age of 5-7 years.

• A stepwise approach and nonpharmacologic pain management techniques are especially important in children.

• The next slide includes a summary table of responses to pain by age
### Child’s Understanding of Pain, Behavioral Responses, and Verbal Descriptions by Developmental Stage

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Understanding of Pain</th>
<th>Behavioral Response</th>
<th>Verbal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infants</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 months</td>
<td>No understanding of pain; is responsive to parental anxiety</td>
<td>Generalized body movements, chin quivering, facial grimacing, poor feeding</td>
<td>Cries</td>
</tr>
<tr>
<td>6–12 months</td>
<td>Has a pain memory; is responsive to parental anxiety</td>
<td>Reflex withdrawal to stimulus, facial grimacing, disturbed sleep, irritability, restlessness</td>
<td>Cries</td>
</tr>
<tr>
<td><strong>Toddlers</strong></td>
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<tr>
<td>1–3 years</td>
<td>Does not understand what causes pain and why they might be experiencing it</td>
<td>Localized withdrawal, resistance of entire body, aggressive behavior, disturbed sleep</td>
<td>Cries and screams, can’t describe intensity/type of pain; <em>Use words for pain such as owie and boo-boo</em></td>
</tr>
<tr>
<td><strong>Preschoolers</strong></td>
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<td></td>
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<tr>
<td>3–6 years</td>
<td>Pain is a hurt; Does not relate pain to illness; may relate pain to an injury; <em>Often believes pain is punishment</em>; Unable to understand why a painful procedure will help them feel better or why an injection takes the pain away</td>
<td>Active physical resistance, directed aggressive behavior, strikes out physically and verbally when hurt, low frustration level</td>
<td>Has language skills to express pain on a sensory level; Can identify location and intensity of pain, denies pain, may believe his or her pain is obvious to others</td>
</tr>
<tr>
<td>(preoperational)</td>
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<tr>
<td><strong>School-Age Children</strong></td>
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<tr>
<td>7–9 years</td>
<td>Doesn’t understand cause of pain; Understands simple relationships between pain and disease and need for painful procedures to treat disease; May associate pain with feeling bad or angry; recognize psychologic pain related to grief and hurt feelings</td>
<td>Passive resistance, clenches fists, holds body rigidly still, suffers emotional withdrawal, engages in plea bargaining</td>
<td>Can specify location and intensity of pain and describes pain physical characteristics in relation to body parts</td>
</tr>
<tr>
<td>(concrete operations)</td>
<td></td>
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<tr>
<td>10–12 years</td>
<td>Better understanding of relationship between an event and pain; More complex awareness of physical and psychologic pain, (moral dilemmas, mental pain)</td>
<td>May pretend comfort to project bravery, <em>may regress with stress and anxiety</em></td>
<td>Able to describe intensity and location with more characteristics, able to describe psychologic pain</td>
</tr>
<tr>
<td>(transitional)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adolescents</strong></td>
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<tr>
<td>13–18 years</td>
<td>Has a capacity for sophisticated and complex understanding of causes of physical and mental pain; Recognizes pain has qualitative and quantitative characteristics; <em>Can relate to pain experienced by others</em></td>
<td>Want to behave in socially acceptable manner-like adults; controlled response; May not complain if given cues from other healthcare providers</td>
<td>More sophisticated descriptions with experience; may think nurses are in tune with their thoughts, so don’t need to tell nurse about their pain</td>
</tr>
</tbody>
</table>
A stepwise approach integrates nonpharmacological and pharmacological pain management methods.

A Stepwise approach includes:
1. Initial assessment
2. Begin treatment
3. Reassess effectiveness of pharmacological and nonpharmacological intervention
4. Periodic reassessment
5. Diagnosis and definitive treatment

Pediatric Nonpharmacologic Therapies
Many of the techniques previously reviewed can be used in the pediatric population. However, to ensure success, providers should consider the patient’s *developmental level*.

In the next section we will outline nonpharmacologic treatment options based on developmental levels.

See [Pediatric Pain Management](#) learning module for more information.
Nonpharmacological Therapies by Developmental Level

Infants
Toddles
Preschoolers
School Age Child
Adolescence
Nonpharmacologic Therapies: Infants

- Swaddling
- Holding
- Rocking
- Sucking
  - Sucrose pacifier (Sweet-Ease 24% sucrose solution)
  - Non-nutritive sucking
- Dim lighting
- Music
- Picture reading
- Toys
  - Key chains
  - Rattles
  - Blocks
Nonpharmacologic Measures: Toddlers

- Provide distraction with music
- Provide a pacifier
- Provide light touch or massage
- Try repositioning, splinting
- Apply cold or hot pack
- Offer play with blocks
- Drawing with crayons and paper
- Encourage picture reading
- Encourage singing
- Blowing bubbles
Nonpharmacologic Measures: Preschoolers

- Provide a calm environment
- Provide a position of comfort
- Provide light touch or massage
- Suggest music or TV to entertain
- Coach child through the ED process and/or procedures
- Draw in coloring books
- Play with puzzles
- Look at or read storybooks
- Encourage singing or storytelling
- Hold cold or hot pack
- Engage in distracting conversation
Nonpharmacologic Measures: School Age Child

- Provide a calm environment
- Suggest new positions for comfort
- Suggest music, TV
- Read books
- Coach child through the process and/or procedures
- Share jokes
- Provide light touch or massage

- Hold cold or hot pack
- Demonstrate relaxation techniques such as breathing exercises
- Use squeeze balls
- Encourage conversation about favorite things
- Play with electronic tablet/wireless internet device
Nonpharmacologic Measures: Adolescent

- Apply cold or hot pack
- Suggest repositioning or positions of comfort
- Encourage talking about favorite places or activities
- Provide light touch or massage
- Listen to music
- Read
- Visit with friend
- Use telephone access

- Coach about processes and procedures
- Discuss preferred relaxation techniques
- Demonstrate relaxation techniques, if unfamiliar
- Use squeeze balls
- Encourage making choices
- Play with electronic games or tablets
Overview of Nonpharmacological Treatment Options by Age

<table>
<thead>
<tr>
<th>Physical Comfort Activities</th>
<th>Neonate</th>
<th>Infant</th>
<th>Pre-school</th>
<th>School-age</th>
<th>Adolescent</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral: breastfeeding, pacifier</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Physical: swaddling, dim lights, cuddling, rocking, skin-to-skin contact</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Touching, stroking, rubbing, patting</td>
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</tr>
<tr>
<td>Blowing bubbles, signing, music, coloring, books</td>
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<td></td>
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</tr>
<tr>
<td>Video games, movies, electronic device for games, books, jokes, squeeze ball, breathing exercising, guided imagery, music</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Distracting Activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Puppets, imitation game</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art, drawing, coloring, play dough</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jokes, squeeze ball, breathing exercising, guided imagery, music</td>
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</tbody>
</table>
Nonpharmacologic Pain Management in Special Populations

• Nonpharmacologic measures are excellent adjuncts in other special populations including:
  • Adult patients with autism or developmental delay
  • Chronically ill patients that have undergone numerous past painful experiences
  • Patients with anxiety or mental disorders
  • Chronic pain patients or patients already on high dosages of pain or other medications
Patient Safety Considerations
Traditional and Complementary Therapies

Clinicians should inquire about nonpharmacologic treatments as part of their assessment. Some natural and traditional therapies may pose a health risk as they are not FDA regulated and some can potentially interact with pharmaceutical medications.

<table>
<thead>
<tr>
<th>Examples of natural therapies and pharmaceutical drug interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feverfew + blood thinners</strong></td>
</tr>
<tr>
<td>Feverfew may increase the risk of bleeding in those with bleeding disorders and those on blood thinners.</td>
</tr>
<tr>
<td><strong>Black cohosh, kava + acetaminophen</strong></td>
</tr>
<tr>
<td>Black cohosh and kava may cause liver injury so caution is advised in combining with other medications that can induce liver toxicity</td>
</tr>
<tr>
<td><strong>Valerian, melatonin + sedating medications</strong></td>
</tr>
<tr>
<td>Both valerian and melatonin can cause sedation so care should be taken when used with other sedating medications like muscle relaxers, pain medications, antidepressants, etc..</td>
</tr>
</tbody>
</table>

Providers can consult with hospital pharmacy, drug databases or online tools to review potential interactions.

*National Health Statistics Report 2015: from 2007 to 2012 the definition of complementary health narrowed, reducing what was classified as complementary health
Incorporating Nonpharmacologic Treatment into Practice
Incorporating Nonpharmacologic Treatment into Practice

• Nonpharmacologic treatments may be used to supplement or complement pharmacologic treatment for pain relief. Many of these techniques are easily performed by patients at home for little to no cost.

• **Prescribed medications** treat somatic (physiological and emotional) dimensions of pain, while **nonpharmacological** therapies are useful in treating the affective, cognitive, behavioral and socio-culture aspects of pain.

Tips

Remember, when prescribing nonpharmacological therapies, it is important to discuss **ALL** possible positive and negative outcomes with patients and other healthcare providers!
In Summary

Summary
we are almost there
Summary

• Any intervention that can be distracting, relaxing and enjoyable, can decrease the experience of pain, whether it's distraction, music or another therapy.

• Health care providers can easily implement nonpharmacological therapies since they may benefit pain management, are low cost and easy to administer.
Summary: Impact of Nonpharmacologic Methods

• Reduces stress and anxiety
• Increases feelings of control and choice
• Improves activity level and functional capacity
• Reduces the dosage of analgesic medications thereby decreasing side effects, especially when using opioids
Summary

• Combining pharmacologic and nonpharmacologic methods may yield more effective pain control for the patient.

• Good nutrition, positive outlook in life, less stress and exercise will benefit a patient’s quality of life. By understanding pain dynamics and treatment options, healthcare providers can improve pain management in emergency and other acute care settings.
Additional Resources

American Chronic Pain Association:
The Art of Pain Management
https://theacpa.org/art-of-pain-management

National Center for Complementary and Integrative Health
https://nccih.nih.gov/health/pain
PAMI learning module content will sometimes overlap due to similar topics. The PAMI website offers access to learning module handouts, PAMI Pain Management Guide, 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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