



## Complete Summary

---

### GUIDELINE TITLE

Relief of pain and anxiety in pediatric patients in emergency medical systems.

### BIBLIOGRAPHIC SOURCE(S)

Zempsky WT, Cravero JP. Relief of pain and anxiety in pediatric patients in emergency medical systems. *Pediatrics* 2004 Nov;114(5):1348-56. [143 references] [PubMed](#)

### GUIDELINE STATUS

This is the current release of the guideline.

American Academy of Pediatrics (AAP) Policies are reviewed every 3 years by the authoring body, at which time a recommendation is made that the policy be retired, revised, or reaffirmed without change. Until the Board of Directors approves a revision or reaffirmation, or retires a statement, the current policy remains in effect.

### \*\* REGULATORY ALERT \*\*

### FDA WARNING/REGULATORY ALERT

**Note from the National Guideline Clearinghouse:** This guideline references a drug(s) for which important revised regulatory information has been released.

On April 7, 2005, after concluding that the overall risk versus benefit profile is unfavorable, the FDA requested that Pfizer, Inc voluntarily withdraw Bextra (valdecoxib) from the market. The FDA also asked manufacturers of all marketed prescription nonsteroidal anti-inflammatory drugs (NSAIDs), including Celebrex (celecoxib), a COX-2 selective NSAID, to revise the labeling (package insert) for their products to include a boxed warning and a Medication Guide. Finally, FDA asked manufacturers of non-prescription (over the counter [OTC]) NSAIDs to revise their labeling to include more specific information about the potential gastrointestinal (GI) and cardiovascular (CV) risks, and information to assist consumers in the safe use of the drug. See the [FDA Web site](#) for more information.

Subsequently, on June 15, 2005, the FDA requested that sponsors of all non-steroidal anti-inflammatory drugs (NSAID) make labeling changes to their products. FDA recommended proposed labeling for both the prescription and over-the-counter (OTC) NSAIDs and a medication guide for the entire class of prescription products. All sponsors of marketed prescription NSAIDs, including Celebrex (celecoxib), a COX-2 selective NSAID, have been asked to revise the

labeling (package insert) for their products to include a boxed warning, highlighting the potential for increased risk of cardiovascular (CV) events and the well described, serious, potential life-threatening gastrointestinal (GI) bleeding associated with their use. FDA regulation 21CFR 208 requires a Medication Guide to be provided with each prescription that is dispensed for products that FDA determines pose a serious and significant public health concern. See the [FDA Web site](#) for more information.

## COMPLETE SUMMARY CONTENT

\*\* REGULATORY ALERT \*\*

SCOPE

METHODOLOGY - including Rating Scheme and Cost Analysis

RECOMMENDATIONS

EVIDENCE SUPPORTING THE RECOMMENDATIONS

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

CONTRAINDICATIONS

QUALIFYING STATEMENTS

IMPLEMENTATION OF THE GUIDELINE

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

IDENTIFYING INFORMATION AND AVAILABILITY

DISCLAIMER

## SCOPE

### **DISEASE/CONDITION(S)**

Pain and/or stress that is caused by a disease process, a result of acute injury, or a product of a diagnostic or therapeutic procedure

### **GUIDELINE CATEGORY**

Evaluation  
Management  
Treatment

### **CLINICAL SPECIALTY**

Emergency Medicine  
Family Practice  
Pediatrics

### **INTENDED USERS**

Advanced Practice Nurses  
Emergency Medical Technicians/Paramedics  
Nurses  
Physician Assistants  
Physicians

## **GUIDELINE OBJECTIVE(S)**

To provide information to optimize the comfort of children whether they are cared for in the emergency setting or other environments

## **TARGET POPULATION**

Children who enter into the emergency medical system

## **INTERVENTIONS AND PRACTICES CONSIDERED**

### **Evaluation/Management**

1. Non-pharmacological or stress management and emotional support via friendly, calming environment, distraction techniques, child life specialists, and family presence
2. Pain assessment
  - Self-report scales (Wong-Baker Faces Scale; 10-cm Visual Analog Scale)
  - Behavioral scales in combination with an evaluation of patient's history and physical findings
3. Triage patients

### **Treatment**

#### *Minor Procedures*

1. Acetaminophen
2. Ibuprofen
3. Oral opiates
4. Topical anesthetics
  - Eutectic mixture of local anesthetics (EMLA)
  - Liposomal 4% lidocaine cream (LMX<sub>4</sub>)
  - Lidocaine iontophoresis
  - Vapocoolant sprays
  - Lidocaine, epinephrine, tetracaine (LET)
5. Tissue adhesives
  - Octyl cyanoacrylate
  - Steri-Strips
6. Lidocaine (injected)

#### *Neonatal Pain Management in the Emergency Department (ED)*

1. EMLA
2. Sucrose
3. Pacifier alone or with sucrose
4. Skin-to-skin contact of mother to infant
5. Local and topical anesthesia for lumbar puncture
6. Elimination of heel sticks and intramuscular injection

#### *Administration of Pain Medications*

1. Adjunctive pain medications (e.g., nonsteroidal anti-inflammatory drugs [NSAIDs])
2. Consideration of alternative routes including oral, intranasal, transdermal, and inhaled
3. Nitrous oxide
4. Appropriate pain medication on discharge

#### *Sedation*

1. Sedative hypnotic medication
2. Development of policies for close monitoring of patients receiving sedation

### **MAJOR OUTCOMES CONSIDERED**

- Efficacy of intervention strategies in minimizing pain and anxiety and promoting comfort
- Safety of medication used to manage pain and anxiety

## **METHODOLOGY**

### **METHODS USED TO COLLECT/SELECT EVIDENCE**

Searches of Electronic Databases

### **DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE**

Not stated

### **NUMBER OF SOURCE DOCUMENTS**

Not stated

### **METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE**

Expert Consensus

### **RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE**

Not applicable

### **METHODS USED TO ANALYZE THE EVIDENCE**

Review

### **DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE**

Not stated

## **METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Informal Consensus

## **DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS**

Not stated

## **RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS**

Not applicable

## **COST ANALYSIS**

A formal cost analysis was not performed and published cost analyses were not reviewed.

## **METHOD OF GUIDELINE VALIDATION**

Peer Review

## **DESCRIPTION OF METHOD OF GUIDELINE VALIDATION**

Not stated

# **RECOMMENDATIONS**

## **MAJOR RECOMMENDATIONS**

### **Triage Oral Analgesic Administration Guidelines**

#### **Purpose**

To provide analgesic therapy to patients presenting to triage with a complaint of pain

#### **Procedure**

1. Pain assessment
2. Immediate triage to department for all those with severe pain as assessed by triage nurse and consideration of pain score
3. For those not requiring immediate evaluation with pain score >3 (0-10 scale) or chief complaint consistent with pain, consider administration of oral analgesic
4. Assess recent analgesic use

#### **Contraindications**

1. Allergy to analgesic (consider alternative)
2. Nothing by mouth (NPO) status (if patient may require procedural sedation or general anesthesia, consult with a physician before analgesic administration)

### **Medications**

1. Ibuprofen (avoid if the patient has an aspirin allergy, anticipated surgery, bleeding disorder, hemorrhage, or renal disease)
2. Acetaminophen (avoid if the patient has hepatic disease or dysfunction)
3. Acetaminophen with codeine or other oral opiate

### **Guidelines for the Use of Eutectic Mixture of Local Anesthetics/Liposomal 4% Lidocaine Cream (EMLA/LMX<sub>4</sub>) in the Emergency Department (ED)**

EMLA/LMX<sub>4</sub> use should be considered in any patient who has a high likelihood of undergoing a nonemergent invasive procedure on intact skin in the ED. These include:

- Intravenous line placement or venipuncture
- Lumbar puncture
- Abscess drainage
- Joint aspiration

Discussion with parents should bring up these issues:

- EMLA/LMX<sub>4</sub> does not provide complete pain relief
- Some patients may require a procedure before EMLA/LMX<sub>4</sub> reaches its full effectiveness (see below)

### **Contraindications**

- Emergent need for intravenous access
- Allergy to amide anesthetics
- Nonintact skin
- Recent sulfonamide antibiotic use (trimethoprim-sulfamethoxazole, erythromycin-sulfisoxazole) (EMLA only)
- Congenital or idiopathic methemoglobinemia (EMLA only)

The EMLA dose should be lower for patients <12 months old or weighing <10 kg

### **Placement of EMLA/LMX<sub>4</sub>**

- Intravenous line placement
  - EMLA/LMX<sub>4</sub> should be placed in at least 2 sites over veins amenable to placement of an intravenous line as judged by the triage nurse.
  - EMLA reaches full effectiveness in 1 h; LMx<sub>4</sub> reaches full effectiveness in 30 min.
  - Care should be taken to avoid mucous membrane contact or ingestion.
- Lumbar puncture

- Placement of EMLA/LMX<sub>4</sub> for lumbar puncture should be considered at triage; accurate placement requires consultation with the attending physician.

### **Triage Guidelines for use of Lidocaine, Epinephrine, Tetracaine (LET) (a Topical Anesthetic for Open Wounds**

#### **Eligibility**

- Simple lacerations of the head, neck, extremities, or trunk <5 cm in length

#### **Contraindications**

- Allergy to amide anesthetics
- Gross contamination of wound
- Involvement of mucous membranes, digits, genitalia, ear, or nose

#### **Procedure**

- LET should be placed according to standard ED procedure; time of placement should be documented on triage sheet.
- Maximum wound length: 5 cm; maximum dose: 3 mL

(1) Place 3 mL of LET mixed with cellulose on open wound and cover with occlusive dressing or (2) place cotton ball soaked with LET solution into wound

### **Guidelines for the Use of Sucrose in the ED**

#### **Indications**

- Use as an adjunct for limiting the pain associated with procedures such as heel sticks, venipuncture, intravenous line insertion, arterial puncture, insertion of a Foley catheter, and lumbar puncture in neonates and infants younger than 6 months.

#### **Procedure**

1. Administer 2 mL of 25% sucrose solution by syringe into the infant's mouth (1 mL in each cheek) or allow infant to suck solution from a nipple (pacifier) no more than 2 min before the start of the painful procedure.
2. Sucrose may be given for >1 procedure within a relatively short period of time but should not be administered more than twice in 1 hour.
3. Sucrose seems to be more effective when given in combination with a pacifier; nonnutritive suck also contributes to calming the infant and decreasing pain-elicited distress.

#### **Contraindications**

- Avoid use if patient is under NPO restrictions.

## **Summary of Key Points**

1. Training and education in pediatric pain assessment and management should be provided to all participants in emergency medical systems for children.
2. Simple methods for creating favorable environmental conditions for pediatric patients in the emergency medical services (EMS) setting should be advocated by caregivers.
3. Incorporation of child life specialists and others trained in nonpharmacologic stress reduction should be encouraged.
4. Family presence should be offered as an option during painful procedures.
5. Pain assessment for children should begin at admission to EMS and continue until discharge from the ED. On discharge, patients should receive detailed instruction regarding analgesic administration.
6. Painless administration of analgesics and anesthetics should be practiced when possible.
7. Neonates and young infants should receive appropriate pain relief.
8. Administration of pain medication has not been shown to hinder the evaluation of a possible surgical patient in the ED, and pain medication should not be withheld on this account.
9. Sedation should be provided for patients undergoing painful or stressful procedures in the ED. A structured protocol for pediatric sedation, based on American Academy of Pediatrics (AAP), American Society of Anesthesiologists (ASA), American College of Emergency Physicians, and Emergency Medical Services for Children recommendations, should be followed for all children who receive sedative medications in EMS.

## **CLINICAL ALGORITHM(S)**

None provided

## **EVIDENCE SUPPORTING THE RECOMMENDATIONS**

### **TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS**

The type of evidence supporting each recommendation is not specifically stated.

## **BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS**

### **POTENTIAL BENEFITS**

- Adequate pain assessment
- Control of pain and stress and optimization of comfort for children who enter into the emergency medical system

### **POTENTIAL HARMS**

- Approximately 5% of children find the sensation caused by iontophoretic drug delivery to be unpleasant.
- Nonsteroidal anti-inflammatory drugs have the following known side effects: antiplatelet activity and gastrointestinal and renal toxicity.

- Combinations of medications, particularly the addition of opiates to sedative medications, may increase the risk of respiratory depression and should only be used by individuals trained in airway management and resuscitation.

## CONTRAINDICATIONS

### CONTRAINDICATIONS

#### Analgesic Therapy

- Allergy to analgesic (consider alternative)
- Nothing by mouth (NPO) status (if patient may require procedural sedation or general anesthesia, consult with a physician before analgesic administration)

#### Eutectic Mixture of Local Anesthetics/Liposomal 4% Lidocaine Cream (EMLA/LMX<sub>4</sub>)

- Emergent need for intravenous access
- Allergy to amide anesthetics
- Nonintact skin
- Recent sulfonamide antibiotic use (trimethoprim-sulfamethoxazole, erythromycin-sulfisoxazole) (EMLA only)
- Congenital or idiopathic methemoglobinemia (EMLA only)

#### Lidocaine, Epinephrine, Tetracaine (LET)

- Allergy to amide anesthetics
- Gross contamination of wound
- Involvement of mucous membranes, digits, genitalia, ear, or nose

#### Nitrous Oxide

- Nitrous oxide should be avoided in patients with pneumothorax, bowel obstruction, intracranial injury, and cardiovascular compromise.

#### Sucrose

- Avoid use if patient is under NPO restrictions

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Getting Better  
Staying Healthy

### IOM DOMAIN

Effectiveness  
Patient-centeredness  
Timeliness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Zempsky WT, Cravero JP. Relief of pain and anxiety in pediatric patients in emergency medical systems. Pediatrics 2004 Nov;114(5):1348-56. [143 references] [PubMed](#)

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2004 Nov

### GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

### SOURCE(S) OF FUNDING

American Academy of Pediatrics

### GUIDELINE COMMITTEE

Committee on Pediatric Emergency Medicine  
Section on Anesthesiology and Pain Medicine

## **COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE**

*Primary Authors:* William T. Zempsky; Joseph P. Cravero

*Committee on Pediatric Emergency Medicine, 2003-2004:* Jane F. Knapp, MD, *Chairperson*; Thomas Bojko, MD; Margaret A. Dolan, MD; Karen S. Frush, MD; Ronald A. Furnival, MD; Steven E. Krug, MD; Daniel J. Isaacman, MD; Robert E. Sapien, MD; Kathy N. Shaw, MD, MSCE; Paul E. Sirbaugh, DO

*Liaisons:* Jane Ball, RN, DrPH, EMSC National Resource Center; Kathleen Brown, MD, National Association of EMS Physicians; Dan Kavanaugh, MSW, Maternal and Child Health Bureau; Sharon E. Mace, MD, American College of Emergency Physicians; David W. Tuggle, MD, American College of Surgeons

*Staff:* Susan Tellez

*Section on Anesthesiology and Pain Medicine, 2003-2004:* Thomas J. Mancuso, MD, *Chairperson*; Joseph P. Cravero, MD, *Chairperson-elect*; Rita Agarwal, MD; Constance S. Houck, MD; Zeev Kain, MD; Lynne G. Maxwell, MD; Robert D. Valley, MD, *Immediate Past Chairperson*; Patricia J. Davidson, MD

*Liaison:* Carolyn Fleming Bannister, MD, American Society of Anesthesiologists, Committee on Pediatrics

*Staff:* Kathleen Kuk Ozmeral

## **FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST**

Not stated

## **GUIDELINE STATUS**

This is the current release of the guideline.

American Academy of Pediatrics (AAP) Policies are reviewed every 3 years by the authoring body, at which time a recommendation is made that the policy be retired, revised, or reaffirmed without change. Until the Board of Directors approves a revision or reaffirmation, or retires a statement, the current policy remains in effect.

## **GUIDELINE AVAILABILITY**

Electronic copies: Available from the [American Academy of Pediatrics \(AAP\) Policy Web site](#).

Print copies: Available from American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

## **AVAILABILITY OF COMPANION DOCUMENTS**

None available

## **PATIENT RESOURCES**

None available

## **NGC STATUS**

This NGC summary was completed by ECRI on January 11, 2005. The information was verified by the guideline developer on February 10, 2005. This summary was updated on May 3, 2005 following the withdrawal of Bextra (valdecoxib) from the market and the release of heightened warnings for Celebrex (celecoxib) and other nonselective nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI on June 16, 2005, following the U.S. Food and Drug Administration advisory on COX-2 selective and non-selective non-steroidal anti-inflammatory drugs (NSAIDs).

## **COPYRIGHT STATEMENT**

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions. Please contact the Permissions Editor, American Academy of Pediatrics (AAP), 141 Northwest Point Blvd, Elk Grove Village, IL 60007.

## **DISCLAIMER**

### **NGC DISCLAIMER**

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

© 1998-2008 National Guideline Clearinghouse

Date Modified: 11/3/2008

