



## Complete Summary

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### GUIDELINE TITLE

Obstetric analgesia and anesthesia.

### BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Obstetric analgesia and anesthesia. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2002 Jul. 15 p. (ACOG practice bulletin; no. 36). [116 references]

## COMPLETE SUMMARY CONTENT

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

## SCOPE

### DISEASE/CONDITION(S)

Labor pain

### GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness  
Management  
Risk Assessment

### CLINICAL SPECIALTY

Anesthesiology  
Obstetrics and Gynecology

### INTENDED USERS

Physicians

## GUIDELINE OBJECTIVE(S)

- To help obstetrician-gynecologists understand the available methods of pain relief to facilitate communication with their colleagues in the field of anesthesia, thereby, optimizing patient comfort while minimizing the potential for maternal and neonatal morbidity and mortality
- To aid practitioners in making decisions about appropriate obstetric and gynecologic care

## TARGET POPULATION

Women in labor

## INTERVENTIONS AND PRACTICES CONSIDERED

### Obstetric Anesthesia and Analgesia

1. Parenteral anesthesia, including use of meperidine, fentanyl, nalbuphine, butorphanol, and morphine
2. Regional analgesia, including use of bupivacaine, levobupivacaine, and ropivacaine
  - Epidural analgesia
  - Spinal analgesia
  - Combined spinal epidural analgesia
3. General anesthesia, including use of nitrous oxide, isoflurane, sevoflurane, and sodium pentothal
4. Local anesthesia, including use of lidocaine and 2-chlorprocaine

## MAJOR OUTCOMES CONSIDERED

- Pain relief
- Onset and duration of action of anesthesia/analgesia
- Anesthesia-related maternal and neonatal morbidity and mortality

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)  
Hand-searches of Published Literature (Secondary Sources)  
Searches of Electronic Databases

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

The MEDLINE database, the Cochrane Library, and the American College of Obstetricians and Gynecologists' (ACOG's) own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 1985 and April 2001. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were

consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document.

Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

#### NUMBER OF SOURCE DOCUMENTS

Not stated

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

Weighting According to a Rating Scheme (Scheme Given)

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

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force.

I Evidence obtained from at least one properly designed randomized controlled trial

II -1 Evidence obtained from well-designed controlled trials without randomization

II -2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II -3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

#### METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses  
Systematic Review

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

Not stated

#### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

## DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician-gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A - Recommendations are based on good and consistent scientific evidence.

Level B - Recommendations are based on limited or inconsistent scientific evidence.

Level C - Recommendations are based primarily on consensus and expert opinion.

## COST ANALYSIS

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

## METHOD OF GUIDELINE VALIDATION

Internal Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and sub-specialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

# RECOMMENDATIONS

## MAJOR RECOMMENDATIONS

The grades of evidence (I-III) and levels of recommendations (A-C) are defined at the end of the "Major Recommendations."

The following recommendations are based on good and consistent scientific evidence (Level A):

- Regional analgesia provides a superior level of pain relief during labor when compared with systemic drugs and, therefore, should be available to all women.

- Parenteral pain medications for labor pain decrease fetal heart rate variability and may limit the obstetrician-gynecologist's ability to interpret the fetal heart rate tracing. Consideration should be given to other drugs in the setting of diminished short- or long-term fetal heart rate variability.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Patients with platelet counts of 50,000 to 100,000/microliter may be considered potential candidates for regional analgesia.
- Regional analgesia is preferred in women with preeclampsia unless a contraindication to regional analgesia is present.
- Breastfeeding does not appear to be affected by the choice of anesthesia; therefore, the choice should be based on other considerations

The following recommendations are based primarily on consensus and expert opinion (Level C):

- It is not necessary to routinely obtain a platelet count before administration of regional analgesia or anesthesia in a pregnant patient without complications.
- Clear liquid intake may be allowed in patients in labor without complications.
- Sodium citrate should be administered promptly to neutralize gastric contents following the decision to perform a cesarean delivery.
- Identifying women with risk factors for failed intubation or other complications of anesthesia and referring them for antepartum anesthesia consultation may reduce this risk.
- To avoid respiratory depression, close monitoring of the cumulative narcotic dosage given to a patient antepartum, intrapartum, and postpartum is essential.
- The decision of when to place epidural analgesia should be made individually with each patient, with other factors, such as parity, taken into consideration. Women in labor should not be required to reach 4 to 5 cm of cervical dilatation before receiving epidural analgesia.

#### Definitions:

#### Grades of Evidence

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

#### Levels of Recommendations

Level A - Recommendations are based on good and consistent scientific evidence.

Level B - Recommendations are based on limited or inconsistent scientific evidence.

Level C - Recommendations are based primarily on consensus and expert opinion.

#### CLINICAL ALGORITHM(S)

None provided

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

### BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

#### POTENTIAL BENEFITS

Appropriate use of analgesic and anesthetic agents resulting in better pain relief, increased safety, and decreased maternal and neonatal morbidity and mortality

#### POTENTIAL HARMS

##### Side Effects of Anesthesia and Analgesia

- Parenteral anesthesia (opioid agonists-antagonists). Parenteral anesthesia is associated with nausea, vomiting, respiratory depression, increased maternal sedation, increased blood pressure levels, increased risk of Apgar scores lower than 7 at 5 minutes, neonatal depression.
- Regional analgesia. Common side effects of drugs used for regional analgesia include hypotension, fever, postdural puncture headache, transient fetal heart deceleration, pruritus (with added opioid only), and inadequate pain relief. In addition, the following rare complications are associated with regional analgesia: total spinal blockade, epidural or spinal hematoma, abscess, neurotoxicity, and emergency cesarean delivery for fetal bradycardia.
- General anesthesia. Inhaled anesthetic agents have been associated with neonatal depression.
- Local anesthesia. Toxic effects of local anesthetic agents are rare and include seizures, hypotension, and cardiac arrhythmias. Toxicity is highest with intravascular injection. Complications from pudendal block include

- intravascular injection of anesthetic agents, hematoma, and infection. Paracervical blocks have been strongly associated with fetal bradycardia.
- Maternal mortality. The case fatality rate of general anesthesia for cesarean delivery is estimated to be approximately 32 per 1,000,000 live births compared with 1.9 per 1,000,000 live births for regional anesthesia. Failed intubation occurs in 1 out of 250 cases of general anesthesia administered to pregnant patients. This rate is approximately 10-fold higher than it is in the nonpregnant population.

## CONTRAINDICATIONS

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#### Absolute Contraindications to Regional Anesthesia

- Refractory maternal hypotension
- Maternal coagulopathy
- Maternal use of once-daily dose of low-molecular-weight heparin within 12 hours
- Untreated maternal bacteremia
- Skin infection over site of needle placement
- Increased intracranial pressure caused by a mass lesion

#### Contraindications to Specific Drugs

- Butorphanol. Butorphanol should be avoided in patients with chronic hypertension or preeclampsia.
- Meperidine. Meperidine should be avoided for intravenous patient-controlled administration because of the accumulation of its slowly metabolized active metabolite normeperidine in the neonate and its subsequent neurobehavioral effects.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

## 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

### IOM DOMAIN

Effectiveness  
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

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### ADAPTATION

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

### DATE RELEASED

2002 Jul

### GUIDELINE DEVELOPER(S)

American College of Obstetricians and Gynecologists - Medical Specialty Society

### SOURCE(S) OF FUNDING

American College of Obstetricians and Gynecologists (ACOG)

### GUIDELINE COMMITTEE

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins-Obstetrics

### COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

## GUIDELINE STATUS

This is the current release of the guideline.

## GUIDELINE AVAILABILITY

Electronic copies: Not available at this time.

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV 25430-4500; telephone, 800-762-2264, ext. 192; e-mail: [sales@acog.org](mailto:sales@acog.org). The ACOG Bookstore is available online at the [ACOG Web site](#).

## AVAILABILITY OF COMPANION DOCUMENTS

None available

## PATIENT RESOURCES

None available

## NGC STATUS

This summary was completed by ECRI on February 4, 2004. The information was verified by the guideline developer on July 26, 2004.

## COPYRIGHT STATEMENT

This NGC summary is based on the original guideline, which is subject to the guideline developer's copyright restrictions.

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