



## Complete Summary

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### GUIDELINE TITLE

Constipation in infants and children: evaluation and treatment.

### BIBLIOGRAPHIC SOURCE(S)

Baker SS, Liptak GS, Colletti RB, Croffie JM, Di Lorenzo C, Ector W, Nurko S. Constipation in infants and children: evaluation and treatment. A medical position statement of the North American Society for Pediatric Gastroenterology and Nutrition. *J Pediatr Gastroenterol Nutr* 1999 Nov; 29(5):612-26. [77 references]  
[PubMed](#)

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## SCOPE

### DISEASE/CONDITION(S)

Constipation in infants and children without a previously established medical condition

- Functional constipation (functional fecal retention)
- Organic constipation (organic etiology)
- Hirschsprung disease

### GUIDELINE CATEGORY

Diagnosis  
Evaluation  
Management  
Treatment

### CLINICAL SPECIALTY

Family Practice  
Gastroenterology  
Pediatrics

#### INTENDED USERS

Advanced Practice Nurses  
Health Care Providers  
Nurses  
Pharmacists  
Physician Assistants  
Physicians

#### GUIDELINE OBJECTIVE(S)

To assist providers of medical care in the evaluation and treatment of constipation in infants and children

#### TARGET POPULATION

- Older infants and children with constipation without a previously established medical condition
- Infants less than one year of age with constipation without a previously established medical condition

These guidelines are not intended for use in the following patients:

- Neonates less than 72 hours old
- Premature infants less than 37 weeks' gestation

#### INTERVENTIONS AND PRACTICES CONSIDERED

1. Medical history
2. Physical examination
3. Management of children with functional constipation
  - Education of child and family
  - Disimpaction (oral disimpaction with high-dose mineral oil, polyethylene glycol electrolyte solution, or laxatives; rectal disimpaction with phosphate soda, saline, or mineral oil enemas)
  - Maintenance therapy using dietary interventions, behavioral modification, and laxatives
  - Behavior modification and regular toileting
  - Medication (e.g., mineral oil, magnesium hydroxide, lactulose, sorbitol, or other osmotic laxatives; stimulant laxatives such as senna, bisacodyl, or glycerin)
4. Consultation with a specialist
  - Abdominal radiograph and transit time
  - Diagnosis and treatment of Hirschsprung disease
  - Other medications and testing

#### MAJOR OUTCOMES CONSIDERED

- Sensitivity and specificity of diagnostic tests
- Rate of symptomatic relief
- Prevention and control of symptoms
- Medication and treatment side effects
- Quality of life
- Bowel movement frequency

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

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

To develop evidence-based guidelines, articles on constipation published in English were found using Medline. A search for articles published from January 1966 through November 1997, revealed 3839 articles on constipation. The Cochrane Center has designed a search strategy for Medline to identify randomized controlled trials. This strategy includes controlled vocabulary and free-text terms such as randomized controlled trial, clinical trial, and placebo. When this search strategy was run with the term constipation, 1047 articles were identified, 809 of which were in English and 254 of which included children.

After letters, editorials, and review articles were eliminated, 139 articles remained. Forty-four of these were studies in special populations, such as children with meningomyelocele or Hirschsprung disease, and were eliminated. Ninety-five articles remained and were reviewed in depth. A second search strategy was used to identify articles on constipation that related to treatment, including drug therapy (75 articles), surgery (64 articles), and "therapy" (144 articles). This added 148 new articles, in which the abstracts were reviewed. If the abstract indicated that the article might be relevant, the article was reviewed in depth. Seven additional articles were identified from the reference listings of the articles already cataloged. In total, 160 articles were reviewed for these guidelines.

### NUMBER OF SOURCE DOCUMENTS

160

### 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

Categories of the Quality of Evidence

I Evidence obtained from at least one properly designed randomized controlled study.

II-1 Evidence obtained from well-designed cohort or case-controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case-controlled 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 (such as the results of the introduction of penicillin treatment in the 1940s) could also 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

Systematic Review

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

Articles were evaluated using written criteria developed by Sackett and colleagues. These criteria had been used in previous reviews. Five articles were chosen at random and reviewed by a colleague in the Department of Pediatrics at the University of Rochester (New York, U.S.A.) who had been trained in epidemiology. Concordance using the criteria was 92%. Using the methods of the Canadian Preventive Services Task Force, the quality of evidence of each of the recommendations made by the Constipation Subcommittee was determined and is summarized in Table 2 in the guideline document. The Subcommittee based its recommendations on integration of the literature review combined with expert opinion when evidence was insufficient.

#### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Nominal Group Technique)

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

The Committee based its recommendations on integration of the literature review with expert opinion. Consensus was achieved through Nominal Group Technique, a structured, quantitative method. Using the methods of the Canadian Preventive Services Task Force, the quality of evidence of each of the recommendations made by the Constipation Guideline Committee was determined and is summarized in Table 2 of the original guideline.

#### 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

External Peer Review  
Internal Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

All comments submitted by peer review were considered and where appropriate, modifications were made.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Note from the National Guideline Clearinghouse (NGC): The following key points summarize the content of the guideline recommendations. Refer to the full text for additional information, including detailed information on dosing, possible side effects, and other interventions.

Each recommendation is identified as falling into one of five categories of evidence, indicated by a bracketed Roman numeral. The five categories represent varying levels of clinical confidence regarding the recommendation.

Definitions for the categories of evidence (I, II-1, II-2, II-3, III) are provided at the end of the Major Recommendations field.

#### General Recommendations

A thorough history and physical examination are an important part of the complete evaluation of the infant or child with constipation [III].

Performing a thorough history and physical examination is sufficient to diagnose functional constipation in most cases [III].

A stool test for occult blood is recommended in all constipated infants and in those children who also have abdominal pain, failure to thrive, diarrhea or a family history of colonic cancer or polyps [III].

In selected patients, an abdominal radiograph, when interpreted correctly, can be useful to diagnose fecal impaction [II-2].

Rectal biopsy with histopathologic examination and rectal manometry are the only tests that can reliably exclude Hirschsprung disease [II-1].

In selected patients, measurement of transit time using radio-opaque markers can determine whether constipation is present [II-2].

## Recommendations for Infants

In infants, rectal disimpaction can be carried out with glycerin suppositories. Enemas are to be avoided [II-3].

In infants, juices that contain sorbitol, such as prune, pear, and apple juice, can decrease constipation [II-3].

Barley malt extract, corn syrup, lactulose, or sorbitol (osmotic laxatives) can be used as stool softeners [III].

Mineral oil and stimulant laxatives are not recommended for infants [III].

## Recommendations for Children

In children, disimpaction may be carried out with either oral or rectal medication, including enemas [II-3].

In children, a balanced diet, containing whole grains, fruits, and vegetables, is recommended as part of the treatment for constipation [III].

The use of medications in combination with behavioral management can decrease the time to remission in children with functional constipation [I].

Mineral oil (a lubricant) and magnesium hydroxide, lactulose, and sorbitol (osmotic laxatives) are safe and effective medications [I].

Rescue therapy with short-term administration of stimulant laxatives can be useful in selected patients [II-3].

Senna and bisacodyl (stimulant laxatives) can be useful in selected patients who are more difficult to treat [II-1].

Cisapride has been shown in some but not all controlled studies to be an effective laxative, and can be useful in selected patients [I].

Polyethylene glycol electrolyte solution, given chronically in low dosage, may be an effective treatment for constipation that is difficult to manage [III].

Biofeedback therapy can be effective short-term treatment of intractable constipation [II-2].

Definitions:

## Categories of the Quality of Evidence

I Evidence obtained from at least one properly designed randomized controlled study.

II-1 Evidence obtained from well-designed cohort or case-controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case-controlled 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 (such as the results of the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.

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

#### CLINICAL ALGORITHM(S)

The original guideline contains algorithms for:

- The management of constipation in children one year of age and older
- The management of constipation in infants less than one year of age

### 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

Overall Benefit

Appropriate diagnosis and treatment of constipation in infants and children

Specific Benefits

- Normal bowel movement frequency
- Interventions with few adverse side effects
- Resumption of normal health and quality of life

#### POTENTIAL HARMS

Risks associated with treatment of constipation in infants and children include:

- Side effects of laxatives such as abdominal pain, bloating, cramping, nausea, diarrhea, flatulence, rash, hypernatremia, hypermagnesemia, hypophosphatemia, and hypocalcemia

- Mechanical trauma to the rectal wall, abdominal distension, vomiting, severe and/or lethal hyperphosphatemia and hypocalcemia due to phosphate enemas
- Vomiting, anal irritation, nausea, bloating, cramps, aspiration pneumonia, pulmonary edema, Mallory-Weiss tear due to polyethylene glycol-electrolyte lavage
- Risk of lipoid pneumonia with aspiration of mineral oil lubricant
- Cardiac arrhythmias may occur when cisapride is administered with certain medications

A discussion of potential adverse effects and cautions related to treatment of constipation can be found in Table 7 of the original guideline document.

Subgroups Most Likely to be Harmed:

Infants < 2 years of age, when lubricant laxatives, magnesium-based laxatives, or osmotic enemas are administered

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- This guideline is not intended for the management of neonates less than 72 hours old and premature infants less than 37 weeks' gestation.
- The recommendations are a general guideline and are not intended as substitute for clinical judgment or as a protocol for the management of all patients with this problem.

## 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  
Living with Illness

### IOM DOMAIN

Effectiveness  
Patient-centeredness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

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[PubMed](#)

#### ADAPTATION

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

#### DATE RELEASED

1999 Nov

#### GUIDELINE DEVELOPER(S)

North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition  
- Professional Association

#### SOURCE(S) OF FUNDING

North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition

#### GUIDELINE COMMITTEE

Constipation Guideline Subcommittee

#### COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Susan S. Baker; Gregory S. Liptak; Richard B. Colletti; Joseph M. Croffie; Carlo Di Lorenzo; Walton Ector; Samuel Nurko

#### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

#### GUIDELINE STATUS

This is the current release of the guideline.

#### GUIDELINE AVAILABILITY

Electronic copies: Available from the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition (NASPGHAN) Web site:

- [HTML Format](#)
- [Portable Document Format \(PDF\)](#)

Print copies: Available from NASPGHAN, PO Box 6, Flourtown, PA 19031;  
Telephone (215) 233-0808; Fax (215) 233-3939; E-mail:  
[naspghan@naspghan.org](mailto:naspghan@naspghan.org).

#### AVAILABILITY OF COMPANION DOCUMENTS

None available

#### PATIENT RESOURCES

None available

#### NGC STATUS

This NGC summary was completed by ECRI on June 9, 2003. The information was verified by the guideline developer on June 16, 2003.

#### COPYRIGHT STATEMENT

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