



## Complete Summary

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### GUIDELINE TITLE

Screening for otitis media with effusion. Recommendation statement from the Canadian Task Force on Preventive Health Care.

### BIBLIOGRAPHIC SOURCE(S)

Screening for otitis media with effusion. Recommendation statement from the Canadian Task Force on Preventive Health Care. CMAJ 2001 Oct 16;165(8):1092-3. [11 references]

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## SCOPE

### DISEASE/CONDITION(S)

- Otitis media with effusion (OME) (screening)
- Delayed language development (prevention)

### GUIDELINE CATEGORY

Prevention  
Screening

### CLINICAL SPECIALTY

Family Practice  
Pediatrics  
Preventive Medicine

### INTENDED USERS

Advanced Practice Nurses  
Allied Health Personnel  
Nurses  
Physician Assistants  
Physicians  
Students

#### GUIDELINE OBJECTIVE(S)

To consider the evidence for the early detection, during periodic health examinations, of otitis media with effusion (OME) in the first four years of life in the asymptomatic child

#### TARGET POPULATION

Asymptomatic children during the first four years of life in the periodic health examination

#### INTERVENTIONS AND PRACTICES CONSIDERED

1. Screening tools: tympanometry, microtympanometry, acoustic reflectometry and pneumatic otoscopy
2. Treatment interventions: mucolytics, antibiotics, steroids and surgical insertion of ventilation tubes
3. Other treatment interventions: auto-inflation, non-steroidal anti-inflammatory, homeopathic treatment and antihistamines combined with decongestant therapy

Note: Although treatment interventions are considered, no specific recommendations relating to treatment are given in the guideline.

#### MAJOR OUTCOMES CONSIDERED

##### Primary Outcome

- Prevention of delay in language acquisition

##### Other Outcomes

- Effectiveness of screening the general population the first four years of life for otitis media with effusion
- Sensitivities and specificities of screening tools
- The effect of treatment on otitis media with effusion
- The effect on language related outcomes of treating otitis media with effusion diagnosed through routine care
- The association between otitis media with effusion and adverse language related outcomes

## 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

MEDLINE was searched articles published between January 1966 and August 1999 using the terms "otitis media with effusion," "middle ear effusion," "developmental disabilities," "learning disorders," "child development," "language development disorders," "speech disorders," "mass screening," "sensitivity," and "specificity." The Cochrane Database Systematic Reviews and Controlled Trials Register, the National Health Service (UK) Centre for Reviews and Dissemination Database, and the New Zealand Health Technology Assessment Clearinghouse for Health Outcomes and Health Technology Assessment were also searched for relevant studies and meta-analyses. Relevant references from articles were reviewed.

Exclusion criteria. Studies were excluded if: (1) the assessment of exposure was retrospective, inadequate, or cross-sectional; (2) samples other than the general population were used; (3) otitis media with effusion was evaluated after the first four years of life; and (4) findings were published in abstract form or in conference proceedings only.

Methods. This evidence was systematically reviewed using the methods of the Canadian Task Force on Preventive Health Care (CTFPHC). The Task Force of expert clinicians/methodologists from a variety of medical specialties used a standardised evidence-based method for evaluating the effectiveness of screening interventions. The first author prepared a manuscript providing critical appraisal of the evidence. This included the identification and critical appraisal of key studies and ratings of the quality of this evidence using the Task Force's established methodological hierarchy, resulting in a summary of proposed conclusions and recommendations for consideration by the Task Force. This manuscript was pre-circulated to the members in May 1999, and evidence for this topic was presented by the first author and deliberated upon at the 45th meeting in June 1999. The second author subsequently evaluated the quality of the studies, checked data extraction and contributed to the second draft of the report which was presented to Task Force members in November 1999 and January 2000.

At the meetings, the expert panelists addressed critical issues, clarified ambiguous concepts and analysed the synthesis of evidence. At the end of this process, the specific clinical recommendations proposed by the lead authors were discussed, as were issues related to the clarification of the recommendations for clinical application, and any gaps in evidence. The results of this process are reflected in the description of the decision criteria presented with the specific recommendations. The final decisions on the recommendations were arrived at by the Task Force members and the lead authors.

Procedures to achieve adequate documentation, consistency, comprehensiveness, objectivity and adherence to the Task Force methodology were maintained at all stages during the review development, the consensus process and beyond. These were managed by the Task Force Office under the supervision of the Chair, and ensured uniformity and impartiality throughout the review process.

#### 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

Quality of evidence was rated according to 5 levels:

I - Evidence from at least 1 properly randomized controlled trial (RCT).

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

II-2 - Evidence from well-designed cohort or case-control analytic studies, preferably from more than 1 centre or research group.

II-3 - Evidence from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments could also be included here.

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

#### METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

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

Not applicable

#### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

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

The 9 member Task Force of experts in family medicine, geriatric medicine, paediatrics, psychiatry and epidemiology used an evidence-based method for

evaluating the effectiveness of preventive health care interventions. Recommendations were not based on cost-effectiveness. Patient preferences were not discussed. The lead author prepared a manuscript providing critical appraisal of the evidence. This included identification and critical appraisal of key studies, and ratings of the quality of this evidence using the Task Force's established methodological hierarchy. The resulting summary of proposed conclusions and recommendations for consideration was presented and deliberated upon at 3 Task Force Meetings in June and November of 1999 and September and January of 2000.

## RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Grades of Recommendation:

- A. Good evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination (PHE).
- B. Fair evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination.
- C. Insufficient evidence regarding inclusion or exclusion of the condition or maneuver in a periodic health examination, but recommendations may be made on other grounds.
- D. Fair evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.
- E. Good evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.

## COST ANALYSIS

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

## METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups  
External Peer Review  
Internal Peer Review

## DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Internal Peer Review. The members of the Canadian Task Force on Preventive Health Care (CTFPHC) reviewed the findings of this analysis through an iterative process.

External Peer Review. The Task Force sent the final review and recommendations to selected external expert reviewers and their feedback was incorporated.

Comparison with Guidelines from Other Groups. The U.S. Agency for Health Care and Policy Research expert panel did not make a recommendation about early detection of otitis media with effusion. The New Zealand Health Technology Assessment Clearinghouse for Health Outcomes and Health Technology

Assessment stated that it was not possible to conclude whether or not screening programmes for otitis media with effusion in pre-school children are an effective health strategy. The Canadian Task Force on Preventive Health Care previously recommended that routine audiologic screening of pre-schoolers for hearing problems be excluded from the periodic health examination. A report prepared for the United Kingdom Government Department of Health recommend against extending pre-school screening for otitis media with effusion.

Note: For specific references regarding guidelines from other groups, please consult the original guideline document and its companion technical report.

## RECOMMENDATIONS

### MAJOR RECOMMENDATIONS

Recommendation grade [A, B, C, D, E] and level of evidence [I, II-1, II-2, II-3, III] are indicated after each recommendation. Definitions for these grades and levels are repeated following the recommendations. Citations in support of individual recommendations are identified in the original guideline document and its companion technical report.

#### Recommendations

- There is insufficient evidence to include routine early screening for otitis media with effusion (OME) in, or exclude it from, the periodic health examination of children up to 4 years of age (multiple studies) [C, II-2].
- There is insufficient evidence to recommend early screening for otitis media with effusion to prevent delayed language development (Ziehuis, Rach, & van den Broek, 1989; Rach et al., 1991; Schilder et al., 1993) [(C, I, II-2)].

#### Definitions:

#### Recommendation Grades

- A. Good evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination (PHE).
- B. Fair evidence to support the recommendation that the condition or maneuver be specifically considered in a periodic health examination.
- C. Insufficient evidence regarding inclusion or exclusion of the condition or maneuver in a periodic health examination, but recommendations may be made on other grounds.
- D. Fair evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.
- E. Good evidence to support the recommendation that the condition or maneuver be specifically excluded from a periodic health examination.

Quality of evidence was rated according to 5 levels:

I - Evidence from at least 1 properly randomized controlled trial (RCT).

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

II-2 - Evidence from well-designed cohort or case-control analytic studies, preferably from more than 1 centre or research group.

II-3 - Evidence from comparisons between times or places with or without the intervention. Dramatic results in uncontrolled experiments could also be included here.

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

#### CLINICAL ALGORITHM(S)

None provided

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

#### 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

The potential benefit of screening for otitis media with effusion depends on the proof that early detection and treatment will prevent delay in language acquisition. No randomized controlled trials assessing the overall process of earlier detection of otitis media with effusion and early intervention to prevent delay in acquiring language were identified, although one trial evaluated treatment in a screened population and found no benefit.

The evidence regarding the use of screening tools such as tympanometry, microtympanometry, acoustic reflectometry and pneumatic otoscopy in the general population of children in the first four years of life is unclear.

Some treatments (mucolytics, antibiotics, and steroids) resulted in the short-term resolution of effusions as measured by tympanometry. Ventilation tubes resolved effusions and improved hearing. Ventilation tubes in children with hearing loss associated with otitis media with effusion benefited children in the short term, but after 18 months, assessment of language did not differ from those children initially assigned to a period of watchful waiting.

Most prospective cohort studies that evaluated the association between otitis media with effusion and language development lacked adequate measurement of

exposure and/or outcome, or suffered from attrition bias. Findings with regard to the association were inconsistent.

## POTENTIAL HARMS

- The sequelae of false-positive or false-negative results from screening. A single screening measure of any type will fail to document clinically relevant chronicity. Not all children with otitis media with effusion experience important hearing loss especially if the otitis media with effusion is unilateral. Children with positive tests would need to begin a period of observation with repeated testing.
- Side effects of treatments. Antibiotics may contribute to the growing problem of bacterial resistance. The risks of surgery include exposure to anaesthetics, surgical complications, ear discharge, and psychological harm.

## QUALIFYING STATEMENTS

### QUALIFYING STATEMENTS

- Recommendations were not based on cost-effectiveness. Patient preferences were not discussed.
- The results of new randomized trials have recently become available regarding the effect of treatment with tympanostomy tubes on language development and quality-of-life outcomes. These studies have not been evaluated as part of this systematic review. Their impact on the current recommendations will be evaluated in a future update.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation of preventive activities in clinical practice continues to be a challenge. To address this issue, Health Canada established a National Coalition of Health Professional Organizations in 1989. The purpose was to develop a strategy to enhance the preventive practices of health professionals. Two national workshops were held. The first focused on strengthening the provision of preventive services by Canadian physicians. The second addressed the need for collaboration among all health professionals.

This process led to the development of a framework or "blueprint for action" for strengthening the delivery of preventive services in Canada (Supply and Services Canada: an Inventory of Quality Initiatives in Canada: Towards Quality and Effectiveness. Health and Welfare Canada, Ottawa, 1993). It is a milestone for professional associations and one that will have a major impact on the development of preventive policies in this country.

In 1991 the Canadian Medical Association spearheaded the creation of a National Partnership for Quality in Health to coordinate the development and implementation of practice guidelines in Canada. This partnership includes the following: the Association of Canadian Medical Colleges, the College of Family

Physicians of Canada, the Federation of Medical Licensing Authorities of Canada, the Royal College of Physicians and Surgeons of Canada, the Canadian Council on Health Facilities Accreditation, and the Canadian Medical Association.

The existence of guidelines is no guarantee they will be used. The dissemination and diffusion of guidelines is a critical task and requires innovative approaches and concerted effort on the part of professional associations and health care professionals. Continuing education is one avenue for the dissemination of guidelines. Local physician leaders, educational outreach programs, and computerized reminder systems may complement more traditional methods such as lectures and written materials. Public education programs should also support the process of guideline dissemination. In this context, rapidly expanding information technology, such as interactive video or computerized information systems with telephone voice output, presents opportunities for innovative patient education. The media may also be allies in the communication of some relevant aspects of guidelines to the public. All of these technologies should be evaluated.

The implementation of multiple strategies for promoting the use of practice guidelines requires marshaling the efforts of governments, administrators, and health professionals at national, provincial and local levels. It is up to physicians and other health professionals to adopt approaches for the implementation of guidelines in clinical practice and to support research efforts in this direction.

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

### IOM CARE NEED

Staying Healthy

### IOM DOMAIN

Effectiveness

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Screening for otitis media with effusion. Recommendation statement from the Canadian Task Force on Preventive Health Care. CMAJ 2001 Oct 16; 165(8):1092-3. [11 references]

### ADAPTATION

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

### DATE RELEASED

2001 Oct

## GUIDELINE DEVELOPER(S)

Canadian Task Force on Preventive Health Care - National Government Agency  
[Non-U.S.]

## SOURCE(S) OF FUNDING

The Canadian Task Force on Preventive Health Care is funded through a partnership between the Provincial and Territorial Ministries of Health and Health Canada.

## GUIDELINE COMMITTEE

Canadian Task Force on Preventive Health Care (CTFPHC)

## COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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Resource people: Nadine Wathen, Coordinator, and Ruth Walton, Research Associate, Canadian Task Force on Preventive Health Care, Department of Family Medicine, University of Western Ontario, London, Ont.

## FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not Stated

## GUIDELINE STATUS

This is the current release of the guideline.

A complete list of planned reviews, updates and revisions is available under the What's New section at the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#).

## GUIDELINE AVAILABILITY

Electronic copies: Available from the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#).

Also available from the from the Canadian Medical Association Journal (CMAJ) Web site in [HTML](#) and [Portable Document Format \(PDF\)](#).

Print copies: Available from Canadian Task Force on Preventive Health Care, 100 Collip Circle, Suite 117, London, Ontario N6G 4X8, Canada.

## AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Butler CC, MacMillan HL. Early detection of OME in the first four years of life to prevent delayed language development: systematic review and recommendations. London (ON): Canadian Task Force, 2000 Sep. 39 p. (CTFPHC Technical Report #01-3). Available in Portable Document Format (PDF) from the [Canadian Task Force on Preventive Health Care \(CTFPHC\) Web site](#).
- Butler CC, MacMillan H, with the Canadian Task Force on Preventive Health Care. Preventive health care, 2000 update: screening for otitis media with effusion. London (ON): Canadian Task Force on Preventive Health Care, 2000 Sep. 3 p. Available from the [CTFPHC Web site](#).
- Stachenko S. Preventive guidelines: their role in clinical prevention and health promotion. London (ON): Canadian Task Force on Preventive Health Care, 1994. Available from the [CTFPHC Web site](#).
- CTFPHC history/methodology. London (ON): Canadian Task Force on Preventive Health Care, 1997. Available from the [CTFPHC Web site](#).
- Quick tables of current recommendations. London (ON): Canadian Task Force on Preventive Health Care. Available from the [CTFPHC Web site](#).

## PATIENT RESOURCES

None available

## NGC STATUS

This summary was completed by ECRI on April 4, 2002. The information was verified by the guideline developer on April 22, 2002.

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