National Institute for Health and Care Excellence

Final

Otitis media with effusion in under 12s

[G] Evidence reviews for antibiotics

NICE guideline NG233

Evidence reviews underpinning recommendation 1.5.2 in the NICE guideline

August 2023

Final

This evidence review was developed by NICE

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ISBN: 978-1-4731-5337-0

Contents

Antibiotics

Review question

What is the effectiveness of antibiotics for managing OME in children under 12 years?

Introduction

The aim of this review is to assess the effectiveness of antibiotics in managing OME in children under 12 years.

Summary of the protocol

See Table 1 for a summary of the Population, Intervention, Comparison and Outcome (PICO) characteristics of this review.

Table 1: Summary of the protocol (PICO table)

Population	**Inclusion:** Children aged 6 months to 12 years with unilateral or bilateral otitis media with effusion (OME). • If a study includes children aged younger than 6 months and older than 12 years, we will only include the study if the majority of children fit our inclusion criteria or only if the trialists present outcome data by age group. • Include all children regardless of any comorbidity such as Down syndrome or cleft palate • Clinical diagnosis of OME will be confirmed by oto(micro)scopy or tympanometry or both
Intervention	Oral antibiotics of all types and courses of duration
Comparison	• Oral antibiotics versus placebo; • Oral antibiotics tubes versus no treatment If trial participants have received other treatments, for example, intranasal steroids, oral steroids, mucolytics or decongestants, we will include these trials if both arms of the study received identical treatment. **Exclusion:** • We will exclude studies in which one antibiotic is compared with another. • We will exclude studies comparing one dose of an antibiotic to a different dose of the same antibiotic.

Outcome	We will analyse the following outcomes in the review, but we will not use them as a basis for including or excluding studies. We will assess all outcomes in the very short term (< 6 weeks for adverse events), short term (</= 3 months), medium term (> 3 months to </= 1 year) and long term (> 1 year).
	
	Critical
	• Hearing
	  ○ proportion of children whose hearing has returned to normal;
	  ○ mean final hearing threshold (determined for the child or ear, depending on the unit of analysis);
	  ○ change in hearing threshold from baseline (determined for the child or ear, depending on the unit of analysis).

- Disease-specific quality of life measured using a validated instrument, for example:
  - OM8-30;
  - Otitis Media-6.
- Adverse events: Anaphylactic reaction

Important

- Presence/persistence of OME.
- Adverse events - measured by the number of participants affected.
  - Tympanic membrane changes, such as:
    - atrophy;
    - atelectasis or retraction;
    - persistent perforation
    - myringosclerosis;
    - tympanosclerosis.
  - Patient-related, such as:
    - vomiting;
    - diarrhoea;
    - dry throat;
    - nasal stinging;
    - cough;
    - long-term hearing loss;
    - postsurgical haemorrhage;
    - pain.
- Receptive language skills, measured using a validated scale, for example:
  - Peabody Picture Vocabulary Test – Revised;
  - relevant domains of the Reynell Developmental Language Scales;
  - relevant domains of the Preschool Language Scale (PLS);
  - relevant domains of the Sequenced Inventory of Communication (SCID).
- Speech development, or expressive language skills, measured using a validated scale, for example:
  - Schlichting test;
  - Lexi list;
  - relevant domains of the Reynell Developmental Language Scales;
  - relevant domains of the PLS;
  - relevant domains of the SCID.
- Cognitive development, measured using a validated scale, for example:
  - Griffiths Mental Development Scales;
  - McCarthy General Cognitive Index;
  - Bayley Scales of Infant and Toddler Development.
- Psychosocial outcomes, measured using a validated scale, for example:
  - the Social Skills Scale of the Social Skills Rating System;
  - Child behaviour Checklist;
  - Strengths and Difficulties Questionnaire;
  - Pediatric Symptom Checklist.
- Listening skills, for example, listening to stories and instructions effectively. Given that there are few validated scales to assess listening skills in children with OME, we will include any methods used by trialists.
- Generic health-related quality of life assessed using a validated instrument, for example:
  - EQ-5D;
  - TNO AZL Children's QoL (TACQOL);
  - TNO AZL Pre-school children QoL (TAPQOL);
  - TNO AZL Infant Quality of Life (TAIQOL);

	○ Infant Toddler Quality of Life Questionnaire (ITQOL); ○ Child Heath Questionnaire (CHQ). • Parental stress, measured using a validated scale, for example: ○ Parenting Stress Index. • Vestibular function: ○ balance; ○ coordination. • Number of doctor-diagnosed AOM episodes within a specified time frame

AOM: acute otitis media; CHQ: Child Heath Questionnaire; EQ: EuroQol; OM: otitis media; OME: otitis media with effusion; PLS: Preschool Language Scale; QoL: quality of life; SCID: Sequenced Inventory of Communication; TNO AZL: Netherlands Organisation for Applied Scientific Research Academic Medical Centre

For further details see the review protocol in appendix A.

Methods and process

During the development of this guideline, a registered Cochrane protocol was identified which matched the committee's intended PICOs. The Cochrane protocol differed from the committee's intended population in that the Cochrane protocols excluded studies that did not meet their inclusion criteria for trustworthiness (that is, those identified as being potentially 'high-risk' using a screening tool developed by Cochrane Pregnancy and Childbirth which included specified criteria to identify studies that are considered sufficiently trustworthy), however no studies were identified that were excluded from the review on these grounds alone.

The Cochrane review team completed a review investigating the effectiveness of antibiotics for OME in children (Mulvaney 2023a) during guideline development and presented their results to the committee, who used them to make recommendations. Cochrane's methods are closely aligned to standard NICE methods, minor deviations (summary of findings tables instead of full GRADE tables, defining primary and secondary outcomes as opposed to critical and important, assessing the risk of bias in primary studies using version 1 (as opposed to version 2) of the Cochrane Risk of Bias tool, how clinically important differences are determined, and including countries from a broader range of income categories than the majority of the other reviews in the guideline) relevant to the topic area were highlighted to the committee and taken into account in discussions of the evidence. Where results were reported per ear instead of per child, Cochrane used an assumed intra-cluster correlation coefficient of 0.5 to adjust the sample size. Full details of the Cochrane review, including methods, are available in the review of antibiotics for children with OME, see Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

We thank the Cochrane ENT Group for their assistance in providing the literature searches and data for review questions relating to Otitis media with effusion in under 12s.

Declarations of interest were recorded according to NICE's conflicts of interest policy.

Effectiveness evidence

Included studies

A Cochrane review (Mulvaney 2023a) including 17 randomised controlled trials (RCTs; Ardehali 2008, Balle 1990, Chen 2013, Endo 1997, Ernston 1985, Healy 1984, Hemlin 1997, Karlidag 2002, Leach 2008, Mandel 1987, Mandel 1991, Marchisio 1998, Møller 1990, Podoshin 1990, Puhakka 1985, Thomsen 1989, van Balen 1996) is considered in this report. This review was used for making recommendations by the committee, as it was considered sufficiently relevant, high quality and up to date.

One study included children aged up to 4 years (Leach 2008), and 15 studies included children aged over 4 years (Ardehali 2008; Balle 1990; Chen 2013; Endo 1997; Ernston 1985; Healy 1984; Hemlin 1997; Karlidag 2002; Mandel 1987; Mandel 1991; Marchisio 1998; Møller 1990; Podoshin 1990; Puhakka 1985; van Balen 1996). One study did not report the age of the participants (Thomsen 1989). None of the studies reported data on participants' hearing levels at baseline, or whether participants had allergy, previous grommets, cleft palate, or Down's syndrome.

The Cochrane review is summarised in Table 2, however full details of the Cochrane review including methods are available in the review of antibiotics for children with OME, see Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

See the Cochrane review for the literature search strategies, study selection flow charts, forest plots and summary of findings tables, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Excluded studies

See the lists of excluded studies in the Cochrane review with reasons for their exclusions, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Summary of included studies

Summaries of the studies that were included in this review are presented in Table 2.

Table 2: Summary of included studies

Study	Population	Comparison	Outcomes
Mulvaney 2023a Systematic review	Children aged 6 months to 12 years with unilateral or bilateral otitis media with effusion. Number of studies: 16 Number of participants: 2951	**Antibiotic vs no treatment** 6 trials, N=647 children with OME (Ardehali 2008, Chen 2013, Ernston 1985, Healy 1984, Karlidag 2002, Marchisio 1998) **Antibiotic vs placebo** 10 trials, N=2304 children with OME (Balle 1990, Endo 1997, Hemlin 1997, Leach 2008, Mandel 1987, Mandel 1991, Møller 1990, Podoshin 1990, Puhakka 1985, Thomsen 1989, van Balen 1996)	Primary: • Hearing as (i) return to normal; or (ii) mean threshold • Disease-specific quality of life • Anaphylaxis Secondary: • Persistence of OME • Other adverse events: (i) ear drum changes; and (ii) patient-related • Receptive and expressive language • Cognitive development • Psychosocial development • Listening skills • Generic health-related QoL • Parental stress • Vestibular function • Number of episodes of acute otitis media

N: number; OME: otitis media with effusion; QoL: quality of life

See the Cochrane review for characteristics of studies tables, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Summary of the evidence

The Cochrane review of antibiotics for children with OME investigated 2 comparisons, with the following findings:

- Comparison 1: Antibiotics versus no treatment. Antibiotics had an important benefit for hearing returned to normal in the very short term and persistence of OME in the short term (all low to very low quality of the evidence according to GRADE criteria). However, when using Cochrane's MID of 10dBHL for hearing thresholds, there was no important difference between antibiotics and no treatment for final hearing threshold in the short term. There was no evidence of an important difference between antibiotics and no treatment for the other outcome: episodes of acute otitis media (AOM) in the short term (very low quality of the evidence according to GRADE criteria). There was no evidence available for this comparison for any of the other outcomes specified in the protocol
- Comparison 2: Antibiotics versus placebo. Antibiotics had an important benefit for number of participants with normal hearing (defined as complete improvement in air-bone gap in worst ear; very low quality) in the short-term, and a possible important benefit for ear-drum perforation in the medium term (90% CI: 0.2 to 0.88; very low quality), but had an important harm of the adverse events: itching/ rash and diarrhoea in the short term (low to very low quality), and a possible important harm of the adverse event: 'gastrointestinal' in the very short term (90% CI: 1.03 to 2.70; moderate quality of the evidence according to GRADE criteria). There was no important difference or no evidence of an important difference between antibiotics and placebo for the other outcomes: final hearing threshold (speech reception or speech awareness) in the short term; persistence of OME in the short or medium term; adverse events: vomiting, abdominal pain, mild sedation/irritability, or episodes of AOM in the short term (all very low to low quality of the evidence according to GRADE criteria). There was no evidence available for this comparison for any of the other outcomes specified in the protocol.

See the Cochrane review for summary of findings tables and full results, including all primary and secondary outcomes and sub-group analyses, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Economic evidence

Included studies

A systematic review of the economic literature was conducted but no economic studies were identified which were applicable to this review question.

Economic model

No economic modelling was undertaken for this review because the committee agreed that other topics were higher priorities for economic evaluation.

The committee's discussion and interpretation of the evidence

The outcomes that matter most

The Cochrane protocol's primary outcomes were hearing, disease-specific quality of life, and anaphylaxis. The committee agreed these outcomes were critical: hearing is a direct measure of any differential effectiveness associated with antibiotics; disease-specific quality of life is a measure of well-being which may capture long-term health-related outcomes associated with the effectiveness of interventions; and anaphylaxis would capture the risk of this serious adverse event which can happen as a result of using antibiotics.

All other outcomes listed in the Cochrane protocol (persistence of OME; adverse events (other than anaphylaxis); receptive and expressive language skills; cognitive development; psychosocial development; listening skills; generic health-related quality of life; parental stress; vestibular function; and number of doctor-diagnosed acute otitis media (AOM) episodes) were agreed to be important outcomes by the committee. The committee agreed that presence or persistence of OME after the use of antibiotics directly measures the effectiveness of the intervention, and that adverse events other than anaphylaxis (including harmful ear drum changes such as atrophy, and patient-related complications such as vomiting), that are relatively common when using antibiotics, were important outcomes because they capture the risks associated with the intervention. OME and related hearing loss can be associated with impairment of receptive and expressive language skills, cognitive development, psychosocial outcomes, listening skills, and vestibular function, which could impact on the child's development, and therefore the committee agreed these were important outcomes. The committee also agreed parental stress levels were important in order to capture whether antibiotics are successful at reducing the stress that can be associated with a child having OME, and generic health-related quality of life was important because this would measure the well-being of the child more generally than disease-specific scales. The number of doctor-diagnosed AOM episodes was agreed to be an important outcome because antibiotics may have a protective role for recurrent AOM.

The quality of the evidence

The quality of the evidence was assessed using GRADE methodology and the evidence for outcomes identified in this review ranged from very low to moderate quality, in most cases due to high or moderate risk of bias and/or serious or very serious imprecision. Two outcomes were also downgraded for serious indirectness (for example due to all included children being aged <12 months), and for 1 outcome, there was serious inconsistency.

The Cochrane authors noted that the quality of the included studies likely reflected the era these studies were conducted in, because they were run when reporting standards were less defined. Therefore, despite the GRADE findings, Cochrane's qualitative assessment was that the trials were conducted with rigour, and it is therefore unlikely that any newer trials adhering to current reporting standards would have different findings. The committee agreed with this assessment.

Benefits and harms

The committee discussed the fact that there was limited new evidence on the effectiveness of antibiotics, with the latest included trial from 2013. There was evidence that antibiotics had an important benefit in terms of hearing returned to normal and persistence of OME when compared to no treatment, and number of participants with normal hearing when compared to placebo. There was also a possible important benefit in terms of ear-drum perforation when comparing antibiotics to placebo, though the committee agreed there was uncertainty in the importance of the outcome. On the other hand, antibiotics had an important harm of itching/ rash and diarrhoea, and a possible important harm of 'gastrointestinal' adverse events when compared to placebo. The committee discussed the fact that, other than for 'gastrointestinal' adverse events (which had moderate quality evidence but uncertainty in the importance of the outcome), the evidence for all of these outcomes was very low to low quality, and some of the evidence was inconsistent; for example, other outcomes related to hearing or persistence of OME showed antibiotics did not have a benefit over placebo, and there was no evidence of a benefit for antibiotics compared to no treatment or placebo for adverse events data for AOM, vomiting, abdominal pain, or mild sedation/irritability-related adverse events.

The committee agreed the hearing improvement potentially associated with the use of antibiotics is somewhat trivial. In particular, the hearing improvements classified as important differences in the evidence would not reflect a clinically important difference in practice. The

committee were aware, based on their knowledge and experience, that the Uncertainty of Measurement value (the doubt about the results of a measurement) is considered to be about 12dB clinically (with some tests' values up to 20dB), meaning differences in hearing improvement less than this are usually not regarded as clinically important. The committee also discussed the fact that all evidence showing benefits of antibiotic use (including any improvement in hearing gain or resolution of OME) was of low or very low quality, and was inconsistent with other hearing outcomes when comparing antibiotics to placebo, which showed no evidence of an important difference between interventions. Although only oral antibiotics were investigated in the review, the committee agreed it was appropriate to extrapolate the evidence to apply to topical antibiotics as well, based on their knowledge that topical antibiotics tend to be weaker than oral antibiotics, and would therefore likely have even less of an effect on outcomes such as hearing or persistence of OME. The committee agreed that overall, the potential benefits of antibiotics did not outweigh the risks associated with their use, including the potential for adverse events as shown in the data, and increased antibiotic resistance. Given this decision, and the lack of new evidence contributing to the review, the committee agreed antibiotics should not be recommended for children with OME. The committee discussed the fact that long term outcomes were not represented in the data and agreed, based on their knowledge and experience, that these would be unlikely to change recommendations significantly, because the critical period to consider for hearing outcomes is in the short-term. The committee agreed this is because a negative impact on hearing levels even for short periods of time can significantly impact a child's development, and it is therefore important to negate these as soon as possible rather than waiting for spontaneous resolution.

In the 2008 guideline on OME there was a single recommendation that stated that the following treatments were not recommended for the management of OME: antibiotics; antihistamines; decongestants; steroids; homeopathy; cranial osteopathy; acupuncture; dietary modification, including probiotics; and massage. When the guideline was updated in 2023, review questions were prioritised for antibiotics, antihistamines, decongestants and steroids. An evidence review was not conducted when the guideline was updated in 2023 for homeopathy, cranial osteopathy, acupuncture, dietary modification, including probiotics, and massage. The review performed for the 2008 guideline did not find any evidence of effectiveness for homeopathy, cranial osteopathy, acupuncture, dietary modification, including probiotics, and massage, and no new applicable evidence has come to light since then. The committee agreed, based on their experience, that there is still variation in practice and so it was important to continue to advise against using homeopathy, cranial osteopathy, acupuncture, dietary modification, including probiotics, and massage as treatment options as there was a lack of evidence regarding their effectiveness in treating OME in children under 12. Therefore, the recommendation on not using homeopathy, cranial osteopathy, acupuncture, dietary modification, including probiotics, and massage was brought forward from the 2008 guideline.

Cost effectiveness and resource use

As no formal economic evaluation was undertaken the committee made a qualitative assessment of the likely cost effectiveness of their recommendations. Given that there was very limited evidence suggesting that antibiotics resulted in significant clinical benefit in addition to some harms the committee considered that the use of antibiotics would not represent a cost-effective use of NHS resources. As antibiotics are not currently recommended for the management of OME, the committees' recommendations will not have a resource impact.

Recommendations supported by this evidence review

This evidence review supports recommendation 1.5.2.

References – included studies

Effectiveness

Mulvaney 2023a

Mulvaney CA, Galbraith K, Webster KE, Rana M, Connolly R, Marom T, Daniel M, Venekamp RP, Schilder AGM, MacKeith S. Antibiotics for otitis media with effusion (OME) in children. Cochrane Database of Systematic Reviews 2023, Issue 10. Art. No.: CD015254. DOI: 10.1002/14651858.CD015254.pub2
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD015254.pub2/full

Appendices

Appendix A Review protocol

Review protocol for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

See the Cochrane review protocol, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.

Appendix B Literature search strategies

Literature search strategies for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

Clinical

See Appendix 1 and Appendix 2 of the Cochrane review, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Economic literature search strategy

A global, population-based search was undertaken to find economic evidence covering all parts of the guideline.

Database: MEDLINE – OVID interface

Date last searched: 09/11/2022

#	Searches
1	otitis media with effusion/
2	(glue ear or ((middle ear or otitis media) adj2 effusion*) or ome or ((secretory or serous) adj2 otitis media)).ti,ab.
3	1 or 2
4	Economics/
5	Value of life/
6	exp "Costs and Cost Analysis"/
7	exp Economics, Hospital/
8	exp Economics, Medical/
9	Economics, Nursing/
10	Economics, Pharmaceutical/
11	exp "Fees and Charges"/
12	exp Budgets/
13	budget*.ti,ab.
14	cost*.ti.
15	(economic* or pharmaco?economic*).ti.
16	(price* or pricing*).ti,ab.
17	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
18	(financ* or fee or fees).ti,ab.
19	(value adj2 (money or monetary)).ti,ab.
20	or/4-19
21	exp models, economic/
22	*Models, Theoretical/
23	*Models, Organizational/
24	markov chains/
25	monte carlo method/
26	exp Decision Theory/
27	(markov* or monte carlo).ti,ab.
28	econom* model*.ti,ab.
29	(decision* adj2 (tree* or analy* or model*)).ti,ab.
30	or/21-29
31	20 or 30
32	3 and 31
33	(animals/ not humans/) or exp animals, laboratory/ or exp animal experimentation/ or exp models, animal/ or exp rodentia/ or (rat or rats or mouse or mice).ti.
34	32 not 33
35	limit 34 to english language
36	limit 35 to yr="2000 -Current"

Database: Embase – OVID interface

Date last searched: 09/11/2022

#	Searches
1	exp secretory otitis media/
2	(glue ear or ((middle ear or otitis media) adj2 effusion*) or ome or ((secretory or serous) adj2 otitis media)).ti,ab.
3	1 or 2
4	health economics/

#	Searches
5	exp economic evaluation/
6	exp health care cost/
7	exp fee/
8	budget/
9	funding/
10	budget*.ti,ab.
11	cost*.ti.
12	(economic* or pharmaco?economic*).ti.
13	(price* or pricing*).ti,ab.
14	(cost* adj2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)).ab.
15	(financ* or fee or fees).ti,ab.
16	(value adj2 (money or monetary)).ti,ab.
17	or/4-16
18	statistical model/
19	exp economic aspect/
20	18 and 19
21	*theoretical model/
22	*nonbiological model/
23	stochastic model/
24	decision theory/
25	decision tree/
26	monte carlo method/
27	(markov* or monte carlo).ti,ab.
28	econom* model*.ti,ab.
29	(decision* adj2 (tree* or analy* or model*)).ti,ab.
30	or/20-29
31	17 or 30
32	3 and 31
33	(animal/ not human/) or nonhuman/ or exp animal experiment/ or exp experimental animal/ or animal model/ or exp rodent/ or (rat or rats or mouse or mice).ti.
34	32 not 33
35	limit 34 to english language
36	limit 35 to yr="2000 -Current"

Database: Cochrane Central Register of Controlled Trials (CENTRAL) – Wiley interface

Date last searched: 09/11/2022

ID	Search
#1	MeSH descriptor: [Otitis Media with Effusion] this term only
#2	(("glue ear" or (("middle ear" or "otitis media") near/2 effusion*) or ome or ((secretory or serious) near/2 "otitis media"))):ti,ab,kw
#3	#1 or #2
#4	MeSH descriptor: [Economics] this term only
#5	MeSH descriptor: [Value of Life] this term only
#6	MeSH descriptor: [Costs and Cost Analysis] explode all trees
#7	MeSH descriptor: [Economics, Hospital] explode all trees
#8	MeSH descriptor: [Economics, Medical] explode all trees
#9	MeSH descriptor: [Economics, Nursing] this term only
#10	MeSH descriptor: [Economics, Pharmaceutical] this term only
#11	MeSH descriptor: [Fees and Charges] explode all trees
#12	MeSH descriptor: [Budgets] explode all trees
#13	budget*:ti,ab
#14	cost*:ti
#15	(economic* or pharmaco?economic*):ti
#16	(price* or pricing*):ti,ab
#17	(cost* near/2 (effective* or utilit* or benefit* or minimi* or unit* or estimat* or variable*)):ab
#18	(financ* or fee or fees):ti,ab
#19	(value near/2 (money or monetary)):ti,ab
#20	{or #4-#19}
#21	MeSH descriptor: [Models, Economic] explode all trees
#22	MeSH descriptor: [Models, Theoretical] this term only
#23	MeSH descriptor: [Models, Organizational] this term only
#24	MeSH descriptor: [Markov Chains] this term only
#25	MeSH descriptor: [Monte Carlo Method] this term only
#26	MeSH descriptor: [Decision Theory] explode all trees
#27	(markov* or "monte carlo"):ti,ab
#28	(econom* next model*):ti,ab
#29	(decision* near/2 (tree* or analy* or model*)):ti,ab

ID	Search
#30	{or #21-#29}
#31	#20 or #30
#32	#3 and #31 with Cochrane Library publication date Between Jan 2000 and Apr 2022

Database: International Network of Agencies for Health Technology Assessment (INAHTA)

Date last searched: 09/11/2022

#	Searches
1	((("Otitis Media with Effusion"[mhe]) OR ((("glue ear" or (("middle ear" or "otitis media") and effusion*) or ome or ((secretory or serous) and "otitis media")))
2	1 and FROM 2000 TO 2022 AND (English)[Language]

Database: NHS Economic Evaluation Database (NHS EED) – CRD interface

Date last searched: 09/11/2022

Line	Search for
1	MeSH DESCRIPTOR Otitis Media with Effusion EXPLODE ALL TREES
2	((glue ear or ((middle ear or otitis media) and effusion*) or ome or ((secretory or serous) and otitis media))) IN NHS EED
3	#1 OR #2

Appendix C Effectiveness evidence study selection

Study selection for: What is the effectiveness of antibiotics for managing OME in children under 12 years?

See Results of the search – figure 1 from the Cochrane review, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Appendix D Characteristics of studies tables

Characteristics of studies tables for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

See the Characteristics of included studies tables from the Cochrane review, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Appendix E Data and analyses tables

Data and analyses tables for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

See the Data and analyses tables from the Cochrane review, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Appendix F Summary of findings tables (or other full modified GRADE tables)

Summary of findings tables for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

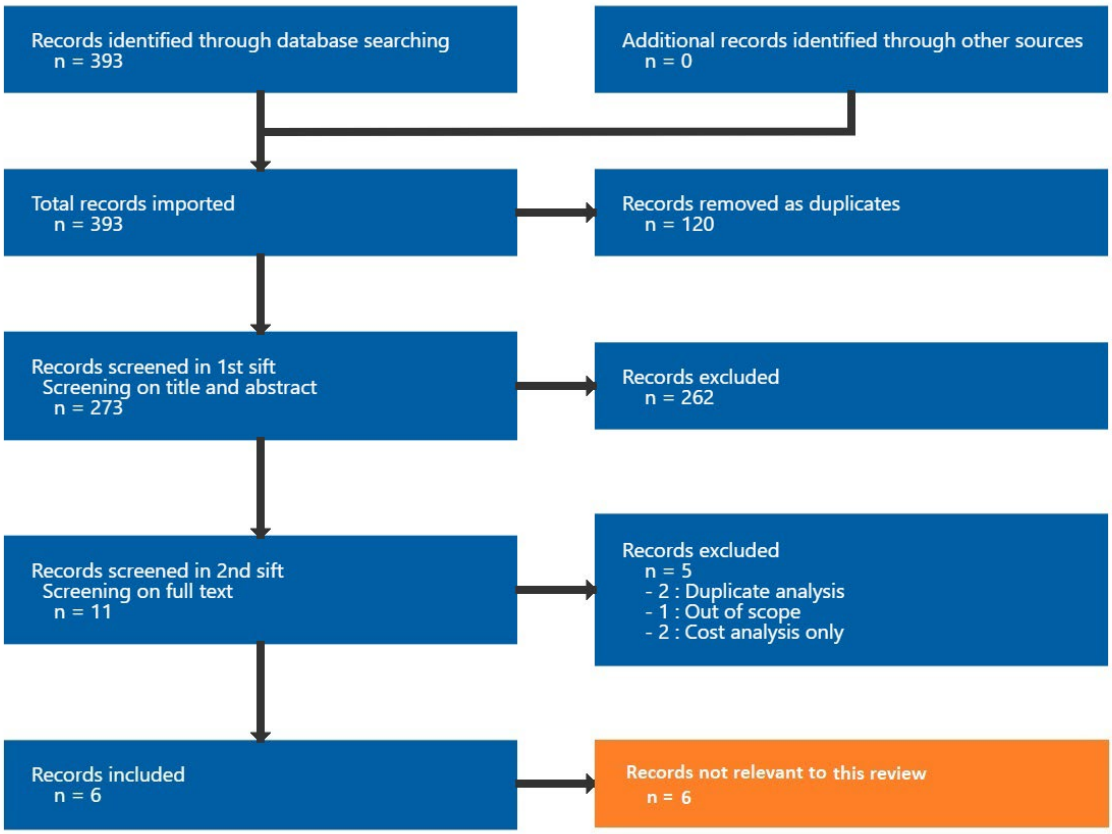
See the Summary of findings tables from the Cochrane review, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Appendix G Economic evidence study selection

Study selection for: What is the effectiveness of antibiotics for managing OME in children under 12 years?

A global economic literature search was undertaken for otitis media with effusion in under 12s. This covered all 14 review questions in this guideline. As shown in Figure 1 below, no economic studies were identified which were applicable to this review question.

Figure 1: Study selection flow chart



Appendix H Economic evidence tables

Economic evidence tables for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

No evidence was identified which was applicable to this review question.

Appendix I Economic model

Economic model for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

No economic analysis was conducted for this review question.

Appendix J Excluded studies

Excluded studies for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

Excluded effectiveness studies

See the Characteristics of excluded studies table from the Cochrane review, Mulvaney 2023a at https://doi.org/10.1002/14651858.CD015254.pub2.

Excluded economic studies

No economic evidence was identified for this review.

Appendix K Research recommendations – full details

Research recommendations for review question: What is the effectiveness of antibiotics for managing OME in children under 12 years?

No research recommendations were made for this review question.