**Antibiotic Prescribing in Primary Care**

**ACUTE OTITIS MEDIA Audit**

Background

Acute otitis media is an infection of the middle ear. NICE Clinical Knowledge Summaries1 (CKS) provide the following definitions:

* **Acute otitis media (AOM)**- middle ear effusion associated with the acute onset of symptoms and signs of middle ear inflammation.
* **Recurrent AOM**- three or more episodes of AOM in 6 months, or four or more episodes in a year, with an absence of middle ear disease between episodes. However, there is no universal definition.
* **Persistent AOM (treatment failure)**- when people return for medical advice with the same episode of AOM, either because symptoms persist after initial management (no-antibiotics, delayed-antibiotics, or immediate-antibiotics prescribing strategy), or because symptoms are worsening.

Aim

To audit antibiotic prescribing for acute otitis media symptoms against

1. [NICE Guidelines NG91](https://www.nice.org.uk/guidance/ng91)1: Otitis media (acute): antimicrobial prescribing
2. [PHE/NICE](https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/antimicrobial-prescribing-guidelines)2 Summary of antimicrobial prescribing guidance - managing common infections

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| **Table 1.** PHE Primary Care Guidance for acute otitis media3. |
| **CONDITION** | **COMMENTS** | **ANTIBIOTIC** | **DOSE** | **DURATION** |
| **Acute otitis media***(child doses)*[NICE NG91](https://www.nice.org.uk/guidance/ng91) | **Optimise analgesia and target antibiotics.**AOM resolves in 60% of cases in 24 hours without antibiotics. Antibiotics reduce pain only at two days (NNT15), and do not prevent deafness.**Consider 2 or 3-day delayed, or immediate antibiotics for pain relief if:** <2 years AND bilateral AOM (NNT4), bulging membrane, or symptom score >8 for: fever; tugging ears; crying; irritability; difficulty sleeping; less playful; eating less (0 = no symptoms; 1 = a little; 2 = a lot).All ages with otorrhoea NNT3.Antibiotics to prevent mastoiditis NNT>4000. | Amoxicillin  | 1 month -11 months: 125mg TDS1-4 years: 250mg TDS5-17 years: 500mg TDS | 5 – 7 days |
| *If penicillin allergy**1st Choices:*ClarithromycinErythromycin *2nd Choice*Co-amoxiclav | 1 month – 11 years:<8kg: 7.5mg/kg BD8 – 11kg: 62.5mg BD12 – 19kg: 125mg BD20 – 29kg:187.5mg BD30 – 40kg: 250mg BDOR12 – 17 years: 250mg – 500mg BD1 month - 1 year: 125mg QDS or 250mg BD2 – 7years: 250mg QDS or 500mg BD8 - 17 years 250 – 500mg QDS or 500mg – 1000mg BD1 – 1 months: 0.25ml/kg of 125/31 suspension TDS1 – 5 years: 5ml OR 0.25ml/kg of 125/31 suspension TDS6 – 11 years: 5ml OR 0.15ml/kg of 250/62 suspension TDS 12 – 17 years: 250/125mg OR 500/125mg TDS | 5 – 7 days5 – 7 days5 – 7 days |

**How to use this audit**

This audit tool can be modified to follow local infection management guidelines.

This audit is only assessing patients that present with AOM and recurrent AOM under the age of 18 years. Each episode of recurrent AOM should be managed in the same way as a presentation of AOM. Patients with persistent AOM (treatment failure) are excluded from this audit because further antibiotic prescription may vary depending upon whether antibiotics had already been used in the initial management.

**Step 1**: Search for 20-40 consultations (minimum 20) relating to AOM in patients under the age of 18. The Read codes below are a sample of codes that can be used, but consider adding codes that you or your colleagues are likely to use when you see patients with acute otitis media. Searching for just a few Read codes that you usually use may identify all the consultations you require for the audit.

|  |  |  |  |
| --- | --- | --- | --- |
| **2D94.00** | O/E - tympanic membrane pink | **F510011** | Acute secretory otitis media |
| **2D95.00** | O/E - tympanic membrane red | **F510100** | Acute serous otitis media |
| **2D96.00** | O/E - tympanic membrane bulging | **F510200** | Acute mucoid otitis media |
| **F51..00** | Nonsuppurative otitis media + eustachian tube disorders | **F510z00** | Acute nonsuppurative otitis media NOS |
| **F510.00** | Acute non suppurative otitis media | **F514.00** | Unspecified nonsuppurative otitis media |
| **F510000** | Acute otitis media with effusion | **F514100** | Serous otitis media NOS |
| **F514200** | Catarrhal otitis media NOS | **F520z00** | Acute suppurative otitis media NOS |
| **F514300** | Mucoid otitis media NOS | **F524.00** | Purulent otitis media NOS |
| **F514z00** | Nonsuppurative otitis media NOS | **F524000** | Bilateral suppurative otitis media |
| **F52..00** | Suppurative and unspecified otitis media | **F526.00** | Acute left otitis media |
| **F520.00** | Acute suppurative otitis media | **F527.00** | Acute right otitis media |
| **F520000** | Acute suppurative otitis media tympanic membrane intact | **F528.00** | Acute bilateral otitis media |
| **F520100** | Acute suppurative otitis media tympanic membrane ruptured | **F52z.00** | Otitis media NOS |
| **F520300** | Acute suppurative otitis media due to disease EC | **F52z.11** | Infection ear |

**Step 2**: Compete the data collection table below for each selected patient.

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| **Data Collection Sheet: ACUTE OTITIS MEDIA Audit** |
| **Compliance with NICE/PHE Guidance for Management of ACUTE OTITIS MEDIA** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** | **14** | **15** | **16** | **17** | **18** | **19** | **20** | **21** | **22** | **23** | **24** | **25** | **26** | **27** | **28** | **29** | **30** | **31** | **32** | **33** | **34** | **35** | **36** | **37** | **38** | **39** | **40** | **% of Total with acute otitis media** | **Your target % for good practice**  |
| 1. No antibiotic given
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Back-up/delayed antibiotic given with advice about how to access
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Immediate antibiotic given with advice on compliance
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. **Management appropriate for clinical presentation?**
 |  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Advice given on natural history and average length of illness

*3 – 7 days* |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Advice given about managing symptoms including fever

*Self-care advice* |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Information about when to re-consult *safety netting advice*
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Information shared on antibiotic use and resistance
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. [Shared the TARGET Treating Your Infection RTI leaflet](http://www.rcgp.org.uk/clinical-and-research/toolkits/~/link.aspx?_id=9FCF9DA4B4A045519593320478DFD9E7&_z=z)
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| **If antibiotics prescribed** (N=\_\_\_\_\_\_ ) |
| 1. Antibiotic choice correct

*1st line: Amoxicillin**Penicillin allergy: clarithromycin OR Erythromycin**2nd choice: Co-amoxiclav* |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Dose/frequency correct

*See guidance table* |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Course length correct

*All choices: 5 - 7d* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

For ease of use you can now summarise your data the Summary table below.

|  |  |
| --- | --- |
| **Total number of patients** | **…………………..** |
| **Row in table below** | **Criteria** | **Number of patients****(N)** | **Total % of Patients** | **Target %** |
| **Management decision** |
| **A** | No antibiotic given |  |  | >70% |
| **B** | Back-up/delayed antibiotic given with advice about how to access |  |  | <40% |
| **C** | Immediate antibiotic given with advice on compliance |  |  | <30% |
| **D** | Management appropriate for clinical presentation? (follows NICE NG91) |  |  | 100% |
| **Providing Advice**  |
| **E** | Advice given on natural history and average length of illness (*3-7 days)* |  |  | 100% |
| **F** | Advice given about managing symptoms (*Self-care advice*) |  |  |
| **G** | Information about when to re-consult (*Safety netting advice*) |  |  |
| **H** | Information given about antibiotic use and resistance  |  |  |
| **I** | [Shared the TARGET Treating Your Infection RTI leaflet](http://www.rcgp.org.uk/clinical-and-research/toolkits/~/link.aspx?_id=9FCF9DA4B4A045519593320478DFD9E7&_z=z) |  |  |
| **If antibiotics were prescribed: (N= …….. )** |
| **J** | Antibiotic choice correct – *1st line: Amoxicillin,* *Penicillin allergy: Clarithromycin/Erythromycin* *2nd line: Co-amoxiclav* |  |  | 100% |
| **K** | Dose/frequency correct – *see guidance table* |  |  |
| **L** | Course length correct – *All choices: 5 – 7days*  |  |  |

## Overall compliance with NICE / PHE Guidance

**Step 3**: How did you do? Follow the simple calculations below to see how compliant you were with NICE / PHE guidelines.

1. **On whether to prescribe an antibiotic**

$$\left(\frac{Total number of PHE antibiotic prescribing guidance followed (row D)}{Total number of patients in audit}\right) X 100$$

1. **Overall compliance with NICE guidance to share self-help, safety netting advice and antibiotic advice (GHIJ) OR if TARGET Treating Your Infection RTI leaflet shared(K)**

$$\left(\frac{\begin{array}{c}Number of patients where self help advice, safety netting advice \\OR the TARGET Treating your infection leafelt was shared\\AVG\left[\left(AVG rows EFGH\right)+Row I\right]\end{array}}{Total number of patients in audit}\right) X 100$$

1. **If antibiotics were used, total number given correct antibiotic, dose/frequency and course length (KLM )**

$$\left(\frac{All parameters of antibiotic prescribing correct (rowsJ+ K+L)}{Total number of patients prescribed an antibiotic (rows B+C)}\right) X 100$$

**What can you do to improve guidance compliance?**

1. Promote use of PHE or local antimicrobial / management of infection guidelines by all in practice
2. Encourage use of TARGET Treating Your Infection – Respiratory Tract infection (TYI-RTI) leaflet.
3. Share TARGET TYI-RTI leaflet on clinical system.
4. Encourage consistent message from different staff and when patients re-attend.
5. Encourage others to preform audit.
6. Re-audit in 4 months - identify a date when you will repeat the audit.
7. Record actions required, especially when compliance with primary care guidance is less than 80%.
8. Make use of TARGET toolkit.
9. Consider developing a target for antibiotic prescribing rate. e.g. 1 in 3 immediate, 1 in 3 delayed, 1 in 3 no antibiotic)

**Acknowledgements**

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**References**

1. National Institute for Health and Care Excellence. 2018. NICE Guideline NG91. Otitis media (acute): antimicrobial prescribing [ONLINE] Available at: <https://www.nice.org.uk/guidance/ng91>. [Accessed 4th July 2019].
2. NICE/Public Health England. (February 2019). Summary of antimicrobial prescribing guidance – managing common infections. [ONLINE] Available at: <https://www.nice.org.uk/Media/Default/About/what-we-do/NICE-guidance/antimicrobial%20guidance/summary-antimicrobial-prescribing-guidance.pdf>. [Accessed 4th July 2019].

**Appendix 1**

Compliance with the decision to treat a patient with Otitis Media can be determined by using the care pathway present in the***NICE Guidelines NG91:***Otitis media (acute): antimicrobial prescribing

Information provided by NICE detailing specific advice to give to patients and their parents, depending upon which antibiotic prescribing strategy is adopted.

***All antibiotic prescribing strategies:***

Inform the person that the average total duration of illness for untreated acute otitis media is 3 - 7 days in total

***When a no antibiotic prescribing strategy is adopted:***

Offer reassurance that antibiotics are not usually needed because they are likely to make little difference to symptoms, may have adverse effects (for example, diarrhoea, vomiting, and rash), and can contribute to antibiotic resistance.

Advise the person to re-consult if the condition worsens or if symptoms are not starting to settle within 3 days of the onset of the illness.

***When a delayed antibiotic prescribing strategy is adopted:***

A delayed prescription, with instructions, can either be given to the person or their parent/carer, or left at an agreed location (such as the practice reception) to be collected at a later date.

Offer reassurance that antibiotics are not usually needed because they are likely to make little difference to symptoms, may have adverse effects (for example, diarrhoea, vomiting, and rash), and can contribute to antibiotic resistance.

Advise that antibiotics should be started if symptoms are not starting to settle within 3 days of the onset of the illness (or sooner if more sever or younger patient) or if there is a significant worsening of symptoms at any time.

Advise the person to re-consult if symptoms persist despite completing a course of antibiotics or if there is a significant worsening of symptoms at any time.

***When an immediate antibiotic prescribing strategy is adopted:***

Advise the person to re-consult if symptoms persist despite completing a course of antibiotics or if there is a significant worsening of symptoms at any time.

**Consider using TARGET Toolkit treat your infection leaflet**

<http://www.rcgp.org.uk/TARGETantibiotics/>