**Antibiotic Prescribing in Primary Care**

**ACUTE SINUSITIS Audit**

**Background**

NICE define acute rhinosinusitis as the sudden onset of two or more symptoms, one should be either nasal blockage/obstruction/congestion or nasal discharge (anterior/posterior nasal drip):

 +/- Facial pain/pressure

 +/- Reduction/loss of smell in adults OR +/- cough in children

The majority of acute cases are viral; less than 2% are bacterial1.

1. Rhinosinusitis is defined as chronic if symptoms are present for over 12 weeks2.
2. Severe complications of ARS involving the brain or orbital structures are rare, but when observed are usually seen in the paediatric population.
3. Red flag symptoms/signs that should prompt immediate referral include all patients with a displaced orbit, double vision, opthalmoplegia, periorbital oedema, frontal swelling or signs of meningitis3.

**Aim**

To evaluate antibiotic prescribing for acute rhinosinusitis against

1. [***NICE Guidelines CG69***4](https://www.nice.org.uk/guidance/cg69/evidence/full-guideline-pdf-196853293)*:* Respiratory tract infections-antibiotic prescribing: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care,
2. [***Public Health England (PHE)***](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/622637/Managing_common_infections.pdf)5Management of infection guidance for primary care for consultation and local adaptation.
3. [***EPOS-2012***3](http://www.ep3os.org/EPOS2012.pdf) European Positon Paper on Rhinosinusitis and Nasal Polyps 2012.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ILLNESS** | **COMMENTS** | **DRUG** | **ADULT DOSE** | **DURATION** |
| **Acute rhinosinusitis**[NICE Sinusitis (acute)](https://www.nice.org.uk/guidance/gid-apg10002/documents/consultation-document)6[NICE RTIs](https://www.nice.org.uk/guidance/cg69/evidence/full-guideline-196853293)4 | **Symptoms <10 days:** Do not offer antibiotics as most resolve in 14 days; antibiotics only offer marginal benefit after 7 days (NNT15).*No antibiotics: Give self-care advice* |
| **Symptoms >10 days**: No antibiotic, or **back-up antibiotic** if several of: purulent nasal discharge; severe localised unilateral pain; fever; marked deterioration after initial milder phase. |
| **Self-care:** Paracetamol or ibuprofen for pain/fever. Consider high-dose nasal steroid if >12yrs.Nasal decongestants or saline may help some. |
| **Systemically very unwell or more serious signs and symptoms:** immediate antibiotic.**Suspected complications:** e.g. sepsis, intraorbital or intracranial, refer to secondary care. | *First line for delayed:* phenoxymethylpenicillin*Penicillin allergy or intolerance:* doxycycline *OR* clarithromycin*Very unwell or worsening symptoms:*co-amoxiclavMometasone | 500mg QDS or 1g BD (if severe)200mg stat then 100mg OD500mg BD                       500/125mg TDS            200mcg BD | 5 days5 days5 days5 days14 days |

**Table 1:** PHE Primary Care Guidance for acute rhinosinusitis\*.

\*For full details of Guidance used to audit against see Appendix 1.**How to complete this audit**

The audit tool is for adults and children that present with acute rhinosinusitis. It can be modified to comply with local infection management guidelines.

**Step 1**: Search for 20-40 consultation (minimum 20) relating to acute rhinosinusitis to be analysed to determine overall compliance with NICE/PHE and EPOS guidance. 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 cough. Searching for just a few Read codes may identify all the consultations you require.

|  |  |
| --- | --- |
| **H010** | Acute maxillary sinusitis  |
| **H011** | Acute frontal sinusitis  |
| **H012** | Acute ethmoidal sinusitis  |
| **H013** | Acute sphenoidal sinusitis  |
| **H014** | Acute rhinosinusitis  |
| **H01y** | Other acute sinusitis  |
| **H01z** | Acute sinusitis  |

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

|  |
| --- |
| **Data Collection Sheet: ACUTE RHINOSINUSITIS Audit** |
| **Compliance with PHE Guidance for Management of acute cough** | **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 acute sinusitis** | **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 illness duration *14 - 21days*
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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: phenoxymethylpenicillinPenicillin allergy: doxycycline OR clarithromycinVery unwell: Co-amoxiclav*

*Mometasone* |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Dose/frequency correct *1st : 500mg QDS or 1g BDDoxycycline : 200mg stat then 100mg OD*

*Clarithromycin: 500mg BDCo-amoxiclav:* **500/125mg TDS** *Mometasone: 200mcg BD*            |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Course length correct*Mometasone 14d; all others 5d*
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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? |  |  | 100% |
| **Providing Advice**  |
| **E** | Advice given on natural history and average length of illness – *18 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: phenoxymethylpenicillinPenicillin allergy: doxycycline OR clarithromycinVery unwell: Co-amoxiclav**Mometasone* |  |  | 100% |
| **K** | Dose/frequency correct *1st : 500mg QDS or 1g BDDoxycycline : 200mg stat then 100mg OD**Clarithromycin: 500mg BDCo-amoxiclav:* **500/125mg TDS** *Mometasone: 200mcg BD*            |  |  |
| **L** | Course length correct – *Mometasone 14d; all others 5d* |  |  |

## 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 (EFGH) OR if TARGET Treating Your Infection RTI leaflet shared(I)**

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

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

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

**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.

**References**

1. Fokkens WJ, Hoffmans R, Thomas M. Avoid prescribing antibiotics in acute rhinosinusitis. BMJ. 2014;349:g5703
2. National Institute for Health and Care Excellence. 2013. Clinical Knowledge Summaries - Sinusitis. Available at: <http://cks.nice.org.uk/sinusitis#!topicsummary> [Accessed 20 July 2017].
3. Fokkens WJ, Lund VJ, Mullol J, Bachert C, Alobid I, Baroody F, et al. European Position PaperonRhinosinusitis and Nasal Polyps 2012. Rhinology 2012:3:1-298
4. National Institute for Health and Care Excellence. 2008. NICE Guideline NG69: Respiratory tract infections (selflimiting): Prescribing antibiotics. Available at: <https://www.nice.org.uk/guidance/cg69/evidence/full-guideline-pdf-196853293> [Accessed 20 July 2017].
5. Public Health England. 2017. Management of infection guidance for primary care for consultation and local adaptation. [ONLINE] Available at: <https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care> [Accessed 20 July 2017].
6. National Institute for Health and Care Excellence. 2017. Sinusitis (acute): antimicrobial prescribing. <https://www.nice.org.uk/guidance/gid-apg10002/documents/consultation-document> [Accessed 20 July 2017].

**Appendix 1**

***A) Antibiotic use:***

Antibiotics make very little difference to the natural course of acute rhinosinusitis. Untreated ARS usually lasts for 12-15 days and antibiotics reduce the duration by an average of 24 hours and 15 patients require treatment for one patient to get better significantly more quickly.

NICE CG69 advises antibiotics are not required in the majority of patients presenting to primary care with acute rhinosinusitis. NICE recommends patients (both adults and children) in the following situations should be offered an immediate prescription and/or further appropriate investigation and management:

* if the patient is systemically very unwell
* if the patient has symptoms and signs of suggestive of serious illness and/or complications
* if the patient is at high risk of serious complications because of pre-existing comorbidity

EPOS recommends that antibiotics should be reserved for use in patient whom the probability of bacterial disease is substantial. Acute bacterial rhinosinusitis should be suspected when at least three of the following features are present1.

* discoloured or purulent discharge (with unilateral predominance).
* severe local pain (with unilateral predominance).
* a fever of greater than 38oC.
* a marked deterioration after an initial form of the illness (so-called ‘double-sickening’).
* Elevated ESR/CRP although the practicality of this criterion in primary care is limited.

***B) Audit cases by whether an immediate delayed/back-up or no antibiotic prescribing strategy is adopted, in line with NICE CG69/PHE guidelines or EPOS (depending on which guidelines you usually use).***

In all consultations the following points should be considered and audited

* Advice about usual natural history of the illness and average total illness length of ARS:17 days
* Advice about managing symptoms including fever (particularly analgesics and antipyretics).

Immediate Antimicrobial Prescription

If an immediate antimicrobial prescription is given then the following points should be considered and audited.

1. Compliance with the antibiotic(s) prescribed, dose, frequency and duration can be determined using the PHE Primary Care guidance or local CCG guidance for acute sinusitis.

Delayed/back-up Antimicrobial Prescription

If a delayed antimicrobial prescription is given then the following points should be considered and audited.

1. Reassurance that antibiotics are not needed immediately because they will make little difference to symptoms and may have side effects, for example, diarrhoea, vomiting and rash.
2. Advice about using the delayed/back-up antibiotic prescription if symptoms are not starting to settle in accordance with the expected course of the illness or if a significant worsening of symptoms occurs.
3. Advice about re-consulting if symptoms get significantly worse despite using the delayed/back-up prescription.
4. Compliance with the antibiotic(s) prescribed, dose, frequency and duration can be determined using the PHE Primary Care guidance or local CCG guidance for acute rhinosinusitis.

No Antimicrobial Prescription

If a no antibiotic policy is instituted the following should be offered and audited:

1. Reassurance that antibiotics are not needed immediately because they will make little difference to symptoms and may have side effects, for example, diarrhoea, vomiting and rash.
2. A clinical review if the condition worsens or becomes prolonged.

***C) Audit advice shared with the patient in line with NICE 69 and NICE PHAC antimicrobial stewardship guidance 2016 QS121***

* information shared about antibiotic use and resistance e.g. Treating Your Infection leaflet including:
* the usual natural history of the illness.
* managing symptoms, including fever.
* safety netting: advice about re-consulting if the symptoms worsen or become prolonged.
* patient’ or carers’ concerns and expectations addressed when agreeing management.

***D) Audit antibiotic choice, dose and duration***