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NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

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Guideline

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Sinusitis (acute): antimicrobial prescribing

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May 2017

Background

- Acute sinusitis (also known as rhinosinusitis) is self-limiting and usually triggered by a viral infection of the upper respiratory tract.
- Only about 2% of cases are complicated by bacterial infection, but it is very difficult to distinguish these.
- Symptoms can last for 2 to 3 weeks – most people will get better within this time without treatment, regardless of cause (bacteria or virus).
- Antibiotics are not needed for most people. The number of people improving with antibiotics is similar to the number getting adverse effects, such as diarrhoea.
- Complications of acute sinusitis are rare. Withholding antibiotics is unlikely to lead to complications.

7

Recommendations

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Managing acute sinusitis

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People presenting with symptoms for around 10 days or less

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- Do not offer an antibiotic prescription.

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- Give advice about:

12

- the usual course of acute sinusitis (2 to 3 weeks)

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- an antibiotic not being needed

- 1 – managing symptoms, including fever, with self-care (see the
2 recommendations on [self-care](#))
3 – seeking medical help if symptoms deteriorate rapidly or significantly, do
4 not improve after 3 weeks, or they become systemically very unwell.

5 See [symptoms and signs](#) of acute sinusitis and the evidence and committee
6 discussion on [no antibiotic](#).

7 **People presenting with symptoms for around 10 days or more with no**
8 **improvement**

- 9 • Consider a high-dose nasal corticosteroid¹ for 14 days for adults and
10 children aged 12 years and over, being aware that nasal corticosteroids:
11 – may improve symptoms but are not likely to affect how long they last
12 – could cause systemic effects, particularly in people already taking
13 another corticosteroid.

14 See the evidence and committee discussion on [nasal corticosteroids](#).

- 15 • Consider no antibiotic prescription or a delayed antibiotic prescription (see
16 the recommendations on [choice of antibiotic](#)), taking account of:
17 – evidence that antibiotics make little difference to how long symptoms
18 last, or the proportion of people with improved symptoms
19 – possible adverse effects, particularly diarrhoea and nausea
20 – factors that might make a bacterial cause more likely (see [symptoms](#)
21 [and signs](#)).
- 22 • When a delayed antibiotic prescription is given, give advice about:
23 – an antibiotic not being needed immediately
24 – using the delayed prescription if symptoms rapidly deteriorate,

¹ High-dose nasal corticosteroids are those equivalent to mometasone 200 micrograms twice daily. Nasal corticosteroids are not licensed for treating acute sinusitis, so use for this indication would be [off label](#). The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the General Medical Council's [Good practice in prescribing and managing medicines and devices](#) for further information.

- 1 significantly worsen, or do not improve within 7 days
- 2 – managing symptoms, including fever, with self-care (see the
- 3 recommendations on [self-care](#))
- 4 – returning for another appointment if symptoms significantly worsen
- 5 despite taking the antibiotic, or the antibiotic has been stopped because
- 6 it was not tolerated.

7 See the evidence and committee discussion on [delayed antibiotics](#).

8 **People presenting at any time who are systemically very unwell, have**

9 **symptoms and signs of a more serious illness or condition, or are at**

10 **high-risk of complications**

- 11 • Offer an immediate antibiotic prescription (see the recommendations on
- 12 [choice of antibiotic](#)) or further appropriate investigation and management in
- 13 line with the NICE guideline on [respiratory tract infections \(self-limiting\):](#)
- 14 [prescribing antibiotics](#).
- 15 • Refer people to hospital if they have symptoms and signs of acute sinusitis
- 16 associated with:
- 17 – a severe systemic infection (see the NICE guideline on [sepsis](#))
- 18 – intraorbital complications such as periorbital oedema or cellulitis, a
- 19 displaced eyeball, double vision, ophthalmoplegia, or newly reduced
- 20 visual acuity
- 21 – intracranial complications such as severe frontal headache, swelling
- 22 over the frontal bone, symptoms or signs of meningitis, or focal
- 23 neurological signs.

24 See the evidence and committee discussion on [choice of antibiotic](#).

25 ***Choice of antibiotic***

26 **Adults aged 18 years and over**

Antibiotic ¹	Dosage and course length
First choice	
Penicillin V	500 mg four times a day for 5 days
Alternative first choices for penicillin allergy or intolerance	

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Doxycycline ²	200 mg on first day, then 100 mg once a day for 5 days
Clarithromycin	500 mg twice a day for 5 days
Erythromycin (in pregnancy)	250 to 500 mg four times a day or 500 to 1000 mg twice a day for 5 days
Second choice (worsening symptoms on first choice taken for at least 2 to 3 days)	
Co-amoxiclav	500/125 mg three times a day for 5 days
Alternative second choice for penicillin allergy or intolerance, or worsening symptoms on second choice taken for at least 2 to 3 days	
Consult local microbiologist	
¹ See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breast-feeding.	

1 **Children and young people under 18 years**

Antibiotic¹	Dosage and course length
First choice	
Penicillin V	1 to 11 months, 62.5 mg four times a day for 5 days 1 to 5 years, 125 mg four times a day for 5 days 6 to 11 years, 250 mg four times a day for 5 days 12 to 17 years, 500 mg four times a day for 5 days
Alternative first choice for penicillin allergy or intolerance	
Clarithromycin	Under 8 kg, 7.5 mg/kg twice a day for 5 days 8 to 11 kg, 62.5 mg twice a day for 5 days 12 to 19 kg, 125 mg twice a day for 5 days 20 to 29 kg, 187.5 mg twice a day for 5 days 30 to 40 kg, 250 mg twice a day for 5 days 12 to 17 years, 250 mg twice a day or 500 mg twice a day for 5 days ²
Doxycycline ³	12 to 17 years, 200 mg on first day, then 100 mg once a day for 5 days
Second choice (worsening symptoms on first choice taken for at least 2 to 3 days)	
Co-amoxiclav	1 to 11 months, 0.25 ml/kg of 125/31 suspension three times a day for 5 days 1 to 5 years, 5 ml of 125/31 suspension three times a day or 0.25 ml/kg of 125/31 suspension three times a day for 5 days 6 to 11 years, 5 ml of 250/62 suspension three times a day or 0.15 ml/kg of 250/62 suspension three times a day for 5 days 12 to 17 years, 250/125 mg three times a day or 500/125 mg three times a day for 5 days ²
Alternative second choice for penicillin allergy or intolerance, or worsening	

symptoms on second choice taken for at least 2 to 3 days

Consult local microbiologist

¹ See BNF for children for appropriate use and dosing in specific populations, for example hepatic impairment, renal impairment.

² The age bands apply to children of average size and, in practice, the prescriber will use the age bands in conjunction with other factors such as the severity of the condition being treated and the child's size in relation to the average size of children of the same age.
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³ Doxycycline is contraindicated in children under the age of 12 years

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2 See the evidence and committee discussion on [choice of antibiotic](#) and
3 [antibiotic course length](#).

4 **Self-care**

- 5 • Consider paracetamol or ibuprofen for pain or fever (assess and manage
6 children aged under 5 who present with fever as outlined in the NICE
7 guideline on [fever in under 5s](#)).
- 8 • Explain that there is not enough evidence that nasal saline or nasal
9 decongestants help symptoms, but they may wish to try these to relieve
10 nasal congestion.
- 11 • Explain that no evidence was found for using oral decongestants,
12 antihistamines, mucolytics, steam inhalation, or warm face packs.

13 See the evidence and committee discussion on [self-care](#).

14 **Symptoms and signs**

15 **Common symptoms and signs**

- 16 • Adults with acute sinusitis usually present with:
- 17 – nasal blockage or congestion
- 18 – nasal discharge
- 19 – facial pain or pressure
- 20 – reduction or loss of the sense of smell.
- 21 • Children often present with non-specific symptoms in the upper respiratory
22 tract. Symptoms of acute sinusitis in children may include the following, but

1 these can be present for many upper respiratory tract infections:

- 2 – nasal blockage or congestion
- 3 – discoloured nasal discharge
- 4 – cough during the day or at night.

5 ***Factors that might make a bacterial cause more likely***

6 It is difficult to distinguish viral and bacterial acute sinusitis. Multiple factors of
7 the following may be more associated with a bacterial cause.

- 8 • Symptoms for more than 10 days.
- 9 • Discoloured or purulent nasal discharge.
- 10 • Severe localised unilateral pain (particularly pain over teeth and jaw).
- 11 • Fever.
- 12 • Marked deterioration after an initial milder phase ('double-sickening').

13 **Summary of the evidence**

14 ***Self-care***

15 **Nasal saline**

- 16 • A systematic review of RCTs ([King et al. 2015](#)) found that nasal saline for
17 up to 28 days did not reduce the time to resolution of symptoms in adults
18 (very low quality evidence). In the largest trial, in children aged 6 to
19 10 years, there were statistically significant reductions in nasal symptom
20 scores, but these may not be clinically important (low quality evidence).
- 21 • Nasal saline irrigation is safe but may cause minor adverse effects, such as
22 irritation (very low quality evidence).

23 **Nasal decongestants**

- 24 • A systematic review of RCTs ([Smith et al. 2013](#)) in children found no
25 benefit for nasal decongestants compared with either placebo or mineral
26 salts (low to very low quality evidence). No systematic reviews or RCTs of
27 nasal decongestants in adults were identified.

- 1 • Nasal decongestants containing sympathomimetics can cause rebound
2 congestion and should not be used for longer than 7 days ([BNF May 2017](#)).

3 **Other interventions**

- 4 • No systematic reviews or RCTs of steam inhalation or applying warm face
5 packs were identified.
- 6 • No systematic reviews or RCTs of paracetamol or ibuprofen were
7 identified. However, these medicines have a well-established efficacy and
8 safety profile for managing pain and fever.
- 9 • No systematic reviews or RCTs of oral decongestants, antihistamines, or
10 mucolytics were identified.

Committee discussion on self-care

- Based on experience, the committee agreed that it was reasonable to consider paracetamol or ibuprofen for acute sinusitis despite no evidence for their use in this condition. This is because these medicines have well-established efficacy and safety profiles for managing pain and fever generally.
- Based on experience, the committee agreed that people with acute sinusitis may wish to try self-care with nasal saline or nasal decongestants to relieve nasal congestion, but it should be explained that there is not enough evidence to recommend these. It should be explained to people that there is no evidence for using oral decongestants, antihistamines, mucolytics, steam inhalation, or warm face packs in acute sinusitis.

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12 ***Nasal corticosteroids***

- 13 • A systematic review of RCTs ([Zalmanovici Trestioreanu et al. 2013](#)) and 1
14 additional RCT ([Keith et al. 2012](#)) found that nasal corticosteroids (all
15 doses assessed, with or without an antibiotic) for 14 to 21 days produced a
16 statistically significant improvement in symptoms in adults and children
17 aged 12 years and over compared with placebo (low to moderate quality

1 evidence). However, it is not clear whether these statistically significant
2 reductions in symptom scores are clinically important. The number needed
3 to treat (NNT) was 15 for 1 additional person with acute sinusitis to have
4 improved or resolved symptoms with nasal corticosteroids compared with
5 placebo. Higher (twice daily) doses appeared to be more effective than
6 lower (once daily) doses.

- 7 • In 1 RCT ([Meltzer et al. 2005](#)) which excluded people with suspected acute
8 bacterial sinusitis and compared nasal corticosteroids alone with
9 antibiotics, there was a statistically significant reduction in symptoms with
10 mometasone nasal spray 200 micrograms twice daily compared with
11 mometasone nasal spray 200 micrograms once daily and compared with
12 amoxicillin 500 mg three times daily for 10 days (low quality evidence).
- 13 • Systemic effects (mineralocorticoid and glucocorticoid) may occur with
14 nasal corticosteroids, including a range of psychological or behavioural
15 effects (particularly in children) ([Drug Safety Update, September 2010](#)).
16 Adverse events for nasal corticosteroids in the studies were not
17 significantly different from placebo (low to moderate quality evidence).
- 18 • The steroid burden of nasal corticosteroids needs to be considered in
19 people already taking oral or inhaled corticosteroids ([Ekins-Daukes et al.](#)
20 [2002](#)), particularly systemic effects in children.

Committee discussion on nasal corticosteroids

- The committee agreed, based on the evidence, that a high-dose nasal corticosteroid could be considered for adults and children aged 12 years and over presenting with prolonged symptoms of acute sinusitis (symptoms for more than 10 days with no improvement).
- However, the committee discussed that prescribers need to weigh up the small improvement in symptoms, which may not be clinically important, against possible systemic effects.
- The committee acknowledged that some of the evidence did not include people with a suspected bacterial cause of acute sinusitis. So nasal corticosteroids may be preferred when factors suggest a bacterial cause

is less likely.

1

2 **No antibiotic**

- 3 • Acute sinusitis is a self-limiting infection usually triggered by a viral
4 infection, so most people will not benefit from an antibiotic.
- 5 • Only 0.5% to 2.2% of acute viral sinusitis becomes complicated by a
6 bacterial infection ([International Consensus Statement on Allergy and
7 Rhinology: rhinosinusitis](#)). The most common bacterial causes are
8 *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*
9 and *Staphylococcus aureus* ([EPOS 2012 position paper](#)).
- 10 • Complications of acute sinusitis are rare, with an incidence in large
11 epidemiological studies of 2.5 to 4.3 per million people per year. The most
12 common complications are orbital, then intracranial, with osseous
13 complications being least common (International Consensus Statement on
14 Allergy and Rhinology: rhinosinusitis). In a Dutch study ([Hansen et al.
15 2012](#)), severe complications were estimated to occur in 1:12,000 children
16 and 1:32,000 adults with acute sinusitis who were otherwise healthy.

17 **Efficacy of antibiotics**

- 18 • Overall, evidence from 3 systematic reviews and meta-analyses of RCTs
19 ([Ahovuo-Saloranta et al. 2014](#), [Falagas et al. 2008](#) and [Rosenfeld et al.
20 2007](#)) found the following. Antibiotics did not significantly increase the
21 proportion of adults with cure or improvement at 3 to 5 days follow-up
22 compared with placebo (low quality evidence). At longer durations of follow-
23 up (approximately 7 to 15 days), there was a statistically significant
24 difference in effectiveness for antibiotics compared with placebo, although
25 the clinical difference in cure, improvement or clinical failure is small (low to
26 high quality evidence). This benefit was not maintained in the longer term
27 (approximately 16 to 60 days follow-up) (low to very low quality evidence).
28 Where statistically significant benefits were seen for antibiotics compared
29 with placebo, the NNT ranged between 7 and 20 depending on the
30 outcomes considered, with little effect on the duration of illness.

- 1 • A meta-analysis of individual patient data ([Young et al. 2008](#)) found that the
2 NNT was 15 for 1 additional person with acute sinusitis to be cured with
3 antibiotics. Common clinical symptoms and signs could not confidently
4 identify subgroups of people who may benefit from antibiotics, although
5 people with purulent nasal discharge in the pharynx (observed by the
6 doctor) had some prognostic value in identifying people who were more
7 likely to benefit (NNT 8).
- 8 • Evidence from 2 systematic reviews ([Cronin et al. 2013](#) and Falagas et al.
9 2008) in children was variable. In 1 systematic review, more children had
10 symptom improvement at 10 to 14 days follow-up with antibiotics compared
11 with placebo (NNT 8; low quality evidence). However, in the other
12 systematic review, antibiotics did not significantly increase cure or
13 improvement compared with placebo (low quality evidence).

14 **Safety of antibiotics**

- 15 • Allergic reactions to penicillins occur in 1 to 10% of people and
16 anaphylactic reactions occur in less than 0.05%. People with a history of
17 atopic allergy (for example, asthma, eczema, and hay fever) are at a higher
18 risk of anaphylactic reactions to penicillins. People with a history of
19 immediate hypersensitivity to penicillins may also react to cephalosporins
20 and other beta-lactam antibiotics ([BNF May 2017](#)).
- 21 • Antibiotic-associated diarrhoea is estimated to occur in 2 to 25% of people
22 taking antibiotics, depending on the antibiotic used ([NICE Clinical](#)
23 [Knowledge Summary \[CKS\]: diarrhoea – antibiotic associated](#)).
- 24 • Evidence from 3 systematic reviews (Falagas et al. 2008, [Lemiengre et al.](#)
25 [2012](#) and Rosenfeld et al. 2007) found significantly more adverse events
26 with antibiotics compared with placebo (low to high quality evidence). The
27 number need to harm (NNH) ranged between 8 and 11 for all adverse
28 effects, and was about 18 or 19 for diarrhoea.
- 29 • See the [summaries of product characteristics](#) for information on
30 contraindications, cautions and adverse effects of individual medicines.

Committee discussion on no antibiotics

- Acute sinusitis usually follows a common cold, and symptoms for less than around 10 days are more likely to be associated with a cold rather than viral or bacterial acute sinusitis. Therefore, the committee agreed that an antibiotic prescription should not be offered to people presenting with acute sinusitis symptoms for around 10 days or less.
- Prolonged symptoms (for around 10 days or more with no improvement) could be due to either viral or bacterial acute sinusitis. Viral acute sinusitis is more likely, but even bacterial sinusitis is usually self-limiting and does not routinely need antibiotics.
- The committee acknowledged the recommendation in the NICE guideline on [respiratory tract infections \(self-limiting\): prescribing antibiotics](#) for a 'no' or delayed antimicrobial prescribing strategy in acute sinusitis.

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Delayed antibiotics

- One RCT in adults ([de la Poza Abad et al. 2015](#)) found that a delayed antibiotic prescription (either patient-led or prescription collection) or no antibiotic prescription was as effective as an immediate antibiotic prescription for managing upper respiratory tract infections (including acute sinusitis) (low quality evidence). No systematic reviews or RCTs of delayed antibiotic prescribing in children were identified.
- One RCT in adults (de la Poza Abad et al. 2015) found no significant differences in adverse events between delayed antibiotic prescription and no prescription strategies, compared with an immediate antibiotic prescription (very low quality evidence).

Committee discussion on delayed antibiotics

- Based on evidence, the committee agreed that no antibiotic prescription or a delayed antibiotic prescription could be considered for people presenting with prolonged acute sinusitis symptoms (symptoms for

around 10 days or more with no improvement).

- The committee discussed that prescribers need to weigh up the small clinical benefits from antibiotics against their potential to cause adverse effects.
- A delayed antibiotic prescription could be used if symptoms deteriorate rapidly or significantly, or do not improve within the next 7 days (by which time most self-limiting acute sinusitis infections would be starting to resolve).
- The committee discussed that prolonged acute sinusitis symptoms could have a viral or a bacterial cause, and distinguishing between these is difficult. Viral acute sinusitis is more likely, but the presence of increasing numbers of factors from the following list may increase the likelihood of a bacterial cause: symptoms for more than 10 days, discoloured or purulent nasal discharge, severe localised unilateral pain (particularly pain over teeth and jaw), fever, or marked deterioration after an initial milder phase ('double-sickening'). The committee discussed that a delayed antibiotic may be preferred when multiple factors suggest a bacterial cause is more likely.
- The committee acknowledged the recommendations in the NICE guideline on [respiratory tract infections \(self-limiting\): prescribing antibiotics](#) for a 'no' or a delayed antimicrobial prescribing strategy in acute sinusitis. An immediate antibiotic prescription is not recommended unless people are systemically very unwell, have symptoms or signs of a more serious illness, or are at high risk of serious complications because of pre-existing comorbidity.

1

2 ***Choice of antibiotic***

- 3 • Overall, evidence from 2 systematic reviews and meta-analyses of RCTs in
4 adults (Ahovuo-Saloranta et al. 2014 and [Karageorgopoulos et al. 2008](#))
5 did not suggest major differences in clinical effectiveness between classes
6 of antibiotics, including penicillins, cephalosporins, macrolides,

- 1 tetracyclines, folate inhibitors and quinolones (very low to moderate quality
2 evidence). Some differences that were statistically significant were seen for
3 some comparisons, for some end points at some time points only.
- 4 • Evidence from 1 systematic review in children ([Smith 2013](#)) found no
5 significant differences between the antibiotics that were used in the studies
6 (low to very low quality evidence).
 - 7 • One systematic review in adults (Ahovuo-Saloranta et al. 2014) found
8 significantly fewer drop-outs because of adverse effects in studies of
9 cephalosporins (1.3%) or macrolides (2.1%), compared with co-amoxiclav
10 (4.4% or 4.8%; high quality evidence). In a further systematic review
11 (Karageorgopoulos et al. 2008), results varied for different safety
12 outcomes, but overall there did not appear to be differences between
13 quinolones and beta-lactam antibiotics (very low quality evidence).
 - 14 • One systematic review in children (Smith 2013) found no significant
15 differences in adverse events between classes of antibiotics (very low
16 quality evidence).

Committee discussion on choice of antibiotic

- Based on evidence of no major differences in clinical effectiveness between classes of antibiotics, the committee agreed that the choice of antibiotic should largely be driven by minimising the risk of resistance.
- The committee discussed that, generally, if an antibiotic is needed to treat an infection that is not life-threatening, a narrow-spectrum antibiotic should generally be first choice. Indiscriminate use of broad-spectrum antibiotics creates a selective advantage for bacteria resistant even to these 'last-line' broad-spectrum agents, and also kills normal commensal flora leaving people susceptible to antibiotic-resistant harmful bacteria such as *C. difficile*. For infections that are not life-threatening, broad-spectrum antibiotics need to be reserved for second-choice treatment when narrow-spectrum antibiotics are ineffective.
- Based on evidence, their experience and resistance data, the committee agreed to recommend the narrow-spectrum antibiotic **penicillin V** as the

first choice because it has the lowest risk of causing resistance. The dosage of 500 mg four times a day agreed for adults (with corresponding usual doses in children) is lower than that used in studies in the evidence review, but dose formulations to give these higher doses are not available in the UK.

- Based on evidence, their experience and resistance data, the committee agreed to recommend the following alternative first-choice antibiotics for use in penicillin allergy or penicillin V intolerance:
 - **doxycycline** (a tetracycline; adults and children over 12 years only).
The dosage of doxycycline 200 mg on the first day, then 100 mg once a day was used in studies in the evidence review.
 - **clarithromycin** (or **erythromycin** in pregnancy), which are macrolides. The dosage of clarithromycin 500 mg twice a day for adults (with corresponding usual doses in children) was used in studies in the evidence review. No studies of erythromycin were included in the evidence review, so the committee discussed and agreed a dosage of 250 to 500 mg four times a day or 500 to 1000 mg twice a day.
- Based on evidence, their experience and resistance data, the committee agreed to recommend **co-amoxiclav** as the second-choice antibiotic for use if symptoms get worse on a first-choice antibiotic taken for at least 2 to 3 days. This broad-spectrum treatment combines a penicillin (amoxicillin) with a beta-lactamase inhibitor, making it active against beta-lactamase-producing bacteria that are resistant to amoxicillin alone. People who do not respond to a first-choice antibiotic may be more likely to have an infection that is resistant to amoxicillin. The dosage of 500/125 mg three times a day for adults (with corresponding usual doses in children) was used in studies in the evidence review and is appropriate for people in whom first-line treatment has failed.

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2 ***Antibiotic course length***

- 1 • One systematic review ([Falagas et al. 2009](#)) found no significant difference
2 in cure or improvement between a short course of antibiotic (3 to 7 days)
3 and a long course (6 to 10 days) (high quality evidence). There was also no
4 difference in cure or improvement in a subgroup analysis for treatment
5 duration of 5 days compared with 10 days (moderate quality evidence) and
6 in a subgroup of short course (3 to 7 days) compared with long course (6 to
7 10 days) of beta-lactam antibiotics (moderate quality evidence).
- 8 • One systematic review in adults (Falagas et al. 2009) found no significant
9 difference in adverse events between a short course of antibiotic (3 to
10 7 days) and a long course (6 to 10 days; moderate quality evidence).
11 However, in sensitivity analyses, there were significantly fewer adverse
12 events with a 5-day course compared with a 10-day course of antibiotics
13 (low quality evidence).

Committee discussions on antibiotic course length

- The committee agreed that, when an antibiotic is appropriate, the shortest course that is likely to be effective should be prescribed.
- Based on evidence, their experience and resistance data, the committee agreed that a 5-day course for all the recommended antibiotics was sufficient to treat acute sinusitis in adults and children. This takes into account the overall efficacy and safety evidence for antibiotics, and minimises the risk of resistance. Studies in the evidence review for specific antibiotics in acute sinusitis sometimes had longer course lengths than 5 days.

14

Other considerations

Medicines adherence

- 17 • Medicines adherence may be a problem for some people with medicines
18 that require frequent dosing (for example, some antibiotics) or longer
19 treatment duration (for example, nasal corticosteroids) (see the NICE
20 guideline on [medicines adherence](#)).

1 ***Resource implications***

- 2 • Respiratory tract infections, including acute sinusitis, are a common reason
3 for consultations in primary care, and therefore are a common reason for
4 potential antibiotic prescribing. In a 2011 survey of UK primary care
5 ([Gulliford et al. 2014](#)), consultations for sinusitis accounted for 9% of all
6 consultations for respiratory tract infections, but the median practice issued
7 an antibiotic prescription for 91% of these.
- 8 • There is potential for resource savings if a no antibiotic or a delayed
9 antibiotic prescription strategy is used. One open-label RCT (de la Poza
10 Abad et al. 2015) found there were significantly lower rates of antibiotic
11 collection with delayed antibiotic prescriptions (either prescription collection
12 [26%] or patient-led [34.7%]) compared with the immediate prescription
13 group (89.1%, $p < 0.001$; low quality evidence).
- 14 • Recommended high-dose nasal corticosteroids are available as generic
15 and proprietary products and costs per unit (excluding VAT) range between
16 £1.97 and £12.99 ([Drug Tariff](#), May 2017).
- 17 • Recommended antibiotics are all available as generic formulations, see
18 Drug Tariff for costs
- 19
- 20 See the full evidence review for more information.