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## **\*\*MOP UP Special Edition – AMR - Shortest Effective Course of Antibiotics \*\***

**This special edition of Mop Up newsletter summarises recent local and national updates in order to -safely reduce patient exposure to antibiotics and address antimicrobial resistance by supporting prescribing of the **shortest effective antibiotic courses****

### **Shortest Effective Course Lengths for Antibiotics**

#### **What is the problem with current courses of antibiotics?**

- Unnecessarily long courses of antimicrobials are one of the factors driving antimicrobial resistance and an increased risk of *Clostridioides difficile* infection in at-risk populations.
- Antibiotic course durations have often been based on a seemingly arbitrary and weak evidential basis<sup>1,2</sup>. With antimicrobial resistance recognised as a global threat to public health, reducing course lengths when the evidence demonstrates that this not only does no harm but is potentially safer for the patient and must be a desirable goal<sup>3,4</sup>.
- Antimicrobials should only be used when they confer health benefits, in other words when the risk benefit ratio falls in favour of treatment.

#### **Antimicrobial resistance**

- Antimicrobial resistance (AMR) arises when the micro-organisms which cause infection (e.g. bacteria) survive exposure to a medicine that would normally kill them or stop their growth. This allows those strains that are capable of surviving exposure to a particular drug to grow and spread, due to a lack of competition from other strains<sup>5</sup>.
- Sub-optimal use of antimicrobials in human medicine is one of the main drivers of AMR, in the UK and internationally. It occurs when patients take the wrong type or quantity of antimicrobial through misdiagnosis, over-prescription or lack of awareness as well as when low concentrations of antimicrobials are used<sup>6</sup>.
- Resistance to antimicrobials is a natural process that has been observed since the first antibiotics were discovered. However, AMR has increasingly become a problem in recent times because overuse of antimicrobials has increased the rate at which resistance is developing and spreading, but we lack new drugs to challenge these new superbugs. In the past, resistant infections were associated predominantly with hospitals and care settings, but over the last decade resistant infections have also been seen in the wider community<sup>6</sup>.

**Do you see patients and prescribe antibiotics? If so, we want you to consider the following ‘quick wins’ to help achieve the ambition:**

- Enabling point-of-prescribing alerts (e.g., OptimiseRx).
- Reviewing your data in the BSW Quarterly Practice Report or via PrescQIPP’s [Optimising antimicrobial use](#) dashboard, completing an audit of course lengths and a review of local prescribing.
- Utilising the [TARGET toolkit](#) resources.
- Highlighting the ambition and available resources within your local AMS network and other multidisciplinary team communications.

## Current Guidelines for Amoxicillin Treatment

Condition/diagnosis	Course length	NICE Guidance	Clinical Evidence
<p><b>Inclusion in this table does not infer amoxicillin is first line treatment, please refer to NICE or BSW local guidance regarding where amoxicillin treatment is positioned for that infection. Always check patient's allergy status and prescribing caution advice as per BNF/ BNFc.</b></p>			
Acute cough	<b>5 days for adult or children</b>	<a href="https://www.nice.org.uk/guidance/ng120">https://www.nice.org.uk/guidance/ng120</a>	NICE committee expert recommendation based on antimicrobial resistance data and expert's experience.
Acute exacerbation of chronic obstructive pulmonary disease (COPD)	<b>5 days for adult</b>	<a href="https://www.nice.org.uk/guidance/ng114">https://www.nice.org.uk/guidance/ng114</a>	Stolbrink et al. 2017 meta-analysis <sup>7</sup> indicates short-course abx were not significantly different from long-course (7 days or more) in resolution of exacerbation symptoms.
Community-acquired pneumonia	<b>5 days for adult or children</b>	<a href="https://www.nice.org.uk/guidance/ng138">https://www.nice.org.uk/guidance/ng138</a>	Li et al. 2007 systematic review <sup>8</sup> and Greenberg et al. 2014 RCT <sup>9</sup> suggest short course antibiotics were not significantly different to long-course antibiotics for treatment failure or mortality in adults or children with low to moderate severity CAP.
Acute otitis media	<b>5 to 7 days for children or young adult</b>	<a href="https://www.nice.org.uk/guidance/ng91">https://www.nice.org.uk/guidance/ng91</a>	NICE Committee agreed that a 5-to-7-day course antibiotic was sufficient to treat AOM in children. Takes into account both the evidence for clinical effectiveness and the evidence for safety and tolerability of antibiotics and minimises the risk of resistance.
Catheter-associated urinary tract infections ( <i>only if culture results available and susceptible</i> )	<b>7 days for adult or children</b>	<a href="https://www.nice.org.uk/guidance/ng113">https://www.nice.org.uk/guidance/ng113</a>	Based on evidence, experience and resistance data, NICE committee agreed that at least 7-day course oral antibiotics was needed to treat catheter-associated UTI to ensure complete cure.
Lower urinary tract infections ( <i>for pregnant women, only if culture results available and susceptible</i> )	<b>7 days for adult pregnant women</b>	<a href="https://www.nice.org.uk/guidance/ng109">https://www.nice.org.uk/guidance/ng109</a>	NICE Committee agreed that a 7-day course of all the recommended antibiotics was required to treat bacteriuria in pregnant women with either symptomatic lower UTI or asymptomatic bacteriuria because the risk of harm from a UTI is higher in pregnant women than in non-pregnant women.

## Current Guidelines for Phoxymethylpenicillin Treatment

Condition/diagnosis	Course length	NICE Guidance	Clinical Evidence
<p>Inclusion in this table does not infer Phoxymethylpenicillin is first line treatment, please refer to NICE or <a href="#">BSW local guidance</a> regarding where treatment is positioned for that infection. Always check patient's allergy status and prescribing caution advice as per BNF/ BNFc.</p>			
Acute sore throat	5 -10 days for adult or children	<a href="https://www.nice.org.uk/guidance/ng84">https://www.nice.org.uk/guidance/ng84</a>	Based on evidence, NICE committee recognised that microbiological cure may be better with a 10-day course of phoxymethylpenicillin compared with a 5- or 7-day course, although there were no differences in relapse or recurrence. However, in situations where there is recurrent infection, a 10-day course may increase the likelihood of microbiological cure.
Scarlet Fever (GAS)	10 days for adult or children	<a href="#">Phoxymethylpenicillin   Prescribing information   Scarlet fever   CKS   NICE</a>	Recommendations on the management of scarlet fever are largely based on the UK Health Security Agency (UKHSA) <i>Guidelines for the public health management of scarlet fever outbreaks in schools, nurseries and other childcare setting</i> <sup>10</sup>
Acute Sinusitis	5 days for adult or children	<a href="#">Overview   Sinusitis (acute): antimicrobial prescribing   Guidance   NICE</a>	Falagas et al. 2009 systematic review <sup>11</sup> indicates there was no significant difference in cure or improvement between a short course and a long course antibiotics for acute sinusitis.

### References

- [The Maxwell Finland Lecture: for the duration-rational antibiotic administration in an era of antimicrobial resistance and clostridium difficile - PubMed \(nih.gov\)](#)
- [The New Antibiotic Mantra—“Shorter Is Better” - PMC \(nih.gov\)](#)
- [Antibiotic resistance as big a threat as climate change – chief medic | Antibiotics | The Guardian](#)
- [Antimicrobial resistance: a global threat | UNEP - UN Environment Programme](#)
- [https://amr-review.org/sites/default/files/160525\\_Final%20paper\\_with%20cover.pdf](https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf)
- <https://www.gov.uk/government/publications/uk-5-year-action-plan-for-antimicrobial-resistance-2019-to-2024>
- <https://journals.sagepub.com/doi/full/10.1177/1479972317745734>
- <https://www.ncbi.nlm.nih.gov/pubmed/17765048>
- <https://pubmed.ncbi.nlm.nih.gov/23989106/>
- <https://www.gov.uk/government/publications/scarlet-fever-managing-outbreaks-in-schools-and-nurseries#full-publication-update-history>
- <https://www.sciencedirect.com/science/article/abs/pii/S1473309908702020>

# 5 DAYS FOR 5 INFECTIONS (ADULTS)



**Sore Throat (if antibiotic indicated)** Phenoxymethylpenicillin 500mg four times a day for 5 days for symptomatic cure **OR** clarithromycin 250mg to 500mg twice a day for 5 days **OR** erythromycin 250mg to 500mg four times a day for 5 days



**COPD (acute infective exacerbation)** Amoxicillin 500mg three times a day for 5 days **OR** doxycycline 200mg day 1 and then 100mg daily on days 2-5 **OR** clarithromycin 500mg twice a day for 5 days



**Acute Cough (if antibiotic indicated)** Doxycycline 200mg day 1 then 100mg daily on days 2-5 **OR** amoxicillin 500mg three times a day for 5 days **OR** clarithromycin 250mg to 500mg twice a day for 5 days **OR** erythromycin 250mg to 500mg four times a day or 500mg to 1g twice a day for 5 days



**Community Acquired Pneumonia** Amoxicillin 500mg to 1g three times a day for 5 days **OR** doxycycline 200mg on day 1, then 100mg daily on days 2-5 **OR** clarithromycin 500mg twice a day for 5 days **OR** erythromycin (in pregnancy) 500mg four times a day for 5 days



**Acute Sinusitis (if antibiotic indicated)** Phenoxymethylpenicillin 500mg four times a day for 5 days **OR** if systemically very unwell co-amoxiclav 500/125mg 1 three times a day for 5 days **OR** for penicillin allergy doxycycline 200mg on day 1, then 100mg daily on days 2-5 **OR** clarithromycin 500mg twice a day for 5 days **OR** erythromycin (in pregnancy) 500mg four times a day for 5 days

Infographic adapted from NHS England

Approved by BSW [Area Prescribing Committee](#) November 2023