Background

Acute cough is defined as a cough being less than 3 weeks in duration. This audit is of patients aged 18+ years presenting with acute cough due to an upper or lower respiratory tract infection (RTI) including acute bronchitis, but not pneumonia or other causes of acute cough (e.g. Pulmonary embolus, pneumothorax, COVID-19). For guidance on managing acute cough in people with suspected or confirmed COVID-19, follow [COVID-19 rapid guideline: managing COVID-19](https://www.nice.org.uk/guidance/NG191)[1](https://www.nice.org.uk/guidance/NG191)[.](https://www.nice.org.uk/guidance/NG191)

In February 2019, NICE published antimicrobial prescribing guidance for acute cough ([NG120](#Ref1)2). This guidance states that there was no robust evidence directly comparing different antibiotics. Doxycycline was preferred over amoxicillin as first choice because there was limited evidence from subgroup analyses that showed benefits on some outcomes where amoxicillin did not. As amoxicillin drives resistance not just in pneumococci but also in gram-negative organisms, the steering group agreed that if possible, amoxicillin should be reserved for more serious infections where bacterial infection is more common e.g. pneumonia. Alternative first-choice antibiotics for adults unable to take doxycycline, which have good activity against common causal bacteria, are: amoxicillin (a penicillin), clarithromycin, or erythromycin (in pregnancy), which are macrolides. Recommendations noted that doxycycline is contraindicated in pregnancy, and alternatives should be considered when choosing antibiotics for women of childbearing age.

Aim

To audit antibiotic prescribing for acute cough against

1. [NICE Clinical Guidance](https://www.nice.org.uk/guidance/cg191/chapter/Introduction): CG191: Pneumonia in adults: diagnosis and management
2. [NICE Guidelines - NG120](#Ref1)*:* Cough (acute): antimicrobial prescribing
3. [NICE Summary of antimicrobial prescribing guidance](https://www.bnf.org/news/2021/07/29/bnf-hosts-antimicrobial-summary-guidance-on-behalf-of-nice-and-phe/): Summary of antimicrobial prescribing guidance (APG) managing common infections

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| **Table 1**: NICE Primary Care Guidance for acute cough (see [NG120](https://www.nice.org.uk/guidance/ng120/) and [CG191](https://www.nice.org.uk/guidance/ng120/) for more information) |
| **INFECTION** | **KEY POINTS** | **MEDICINE** | **DOSE** | **DUR.** |
| Upper RTI | No antibiotic required, consider delayed antibiotic script. Share self-help advice/patient information leaflet |
| Acute cough[NICE NG120](https://www.nice.org.uk/guidance/ng120) | Some people may wish to try honey (in over 1s), the herbal medicine pelargonium (in over 12s), cough medicines containing the expectorant guaifenesin (in over 12s) or cough medicines containing cough suppressants, except codeine, (in over 12s). These self-care treatments have limited evidence for the relief of cough symptoms.Acute cough with upper respiratory tract infection: no antibiotic.Acute bronchitis: no routine antibiotic.Acute cough and higher risk of complications (at face-to-face examination): immediate or back-up antibiotic.Acute cough and systemically very unwell (at face-to-face examination): immediate antibiotic.Higher risk of complications includes people with pre-existing comorbidity; young children born prematurely; people over 65 with 2 or more of, or over 80 with 1 or more of: hospitalisation in previous year, type 1 or 2 diabetes, history of congestive heart failure, current use of oral corticosteroids.Do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid unless otherwise indicated.For detailed information click on the [visual summary](https://www.nice.org.uk/guidance/ng120). See NICE CG 1914 for guidance on **when** to prescribe antibiotics in adults with acute bronchitis who have had a C‑reactive protein (CRP) test (CRP<20mg/l: no routine antibiotic, CRP 20 to 100mg/l: back-up antibiotic, CRP>100mg/l: immediate antibiotic) | **Adults first choice:**doxycycline | 200 mg on first day, then 100 mg once a day for 4 days | 5 days |
| **Adults alternative first choices**: Amoxicillin (preferred antibiotic in pregnancy) **OR** | 500 mg three times a day  |
| clarithromycin **OR** | 250 mg to 500 mg twice a day  |
| erythromycin (preferred if macrolide needed in pregnancy) | 250 mg to 500 mg four times a day or 500 mg to 1000 mg twice a day  |
| **Children and young people < 18 years**:**First Choice:**Amoxicillin | 1 to 11 months:125 mg three times a day 1 to 4 years:250 mg three times a day 5 to 17 years:500 mg three times a day  |
| **Alternative first choices**Clarithromycin **OR** | 1 month to 11 years:Under 8 kg, 7.5 mg/kg twice a day 8 to 11 kg, 62.5 mg twice a day 12 to 19 kg, 125 mg twice a day 20 to 29 kg, 187.5 mg twice a day 30 to 40 kg, 250 mg twice a day 12 to 17 years:250 mg to 500 mg twice a day  |
| Erythromycin **OR** | 1 month to 1 year:125 mg four times a day or 250 mg twice a day 2 to 7 years:250 mg four times a day or 500 mg twice a day 8 to 17 years:250 mg to 500 mg four times a day or 500 mg to 1000 mgtwice a day  |
| Doxycycline | 12 to 17 years:200 mg on first day, then 100 mg once a day for 4 days |

How to complete this audit

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

**Step 1**: Search for 20-40 consultation records (minimum 20 consultations) relating to cough, lower respiratory tract infection or acute bronchitis in patients aged 18 years and over. The Read/Snomed 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 for the audit.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Read Code** | **SNOMED Code** | **Infection** | **Read Code** | **SNOMED Code**  | **Infection** |
| H051 | 54398005 | Acute upper RTI | 1712 | 11833005 | Dry cough |
| H05z | 54150009 | Upper respiratory infection NOS | 1714 | 161924005 | Productive cough- green sputum |
| H05z-1 | 54150009 | Upper RTI | 171z | N/A | Cough symptoms |
| H05z-2 | 281794004 | Viral upper respiratory tract infection | 171F | 135883003 | Cough with fever |
| h0z | 195647007 | Acute respiratory infection NOS | H06z1  | 50417007 | Lower RTI |
| H5yy-1 | N/A | Respiratory infection NOS | H06z1-2 | 195742007 | Acute lower RTI |
| 171 | 49727002 | Cough | H062 | 195742007 | Acute lower RTI |
| H30z | 32398004 | Bronchitis NOS | H060-1 | N/A | Acute wheezy bronchitis |
| H302 | N/A | Wheezy bronchitis | H06z0 | N/A | Chest infection NOS |
| H060 | 10509002 | Acute bronchitis | H06z0-1 | N/A | Chest infection |
| H060z | N/A | Acute bronchitis NOS |  |  |  |

Compliance with the decision to treat a patient with a respiratory tract infection can be determined by using the guidance from NICE, CKS5, and making use of the [TARGET Treating Your Infection leaflet](https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/amr/target-antibiotics-toolkit/leaflets-to-share-with-patients.aspx).

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| **Step 2**: Compete the data collection table below for each selected patient. |
| **Data Collection Sheet: ACUTE COUGH Audit (Adults)** |
| **Compliance with NICE 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 with acute cough** | **Your target % for good practice**  |
| 1. CRP test used (yes/no=1/0)
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. If CRP done, management followed NICE CG191[3](#Ref3)

 *CRP <20mg/l = no antibiotics;**20 - 100mg/l = delayed;**100mg/l = immediate antibiotics* |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 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

21 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 choice: doxycycline OR amoxicillin (preferred in pregnancy)*
* *2nd choice: amoxicillin, OR clarithromycin OR erythromycin (preferred if macrolide needed in pregnancy)*
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Dose/frequency correct
* *doxycycline 200mg stat then 100mg OD*
* *amoxicillin 500mg TDS*
* *clarithromycin 250 to 500 mg BDS*
* *erythromycin 250mg to 500mg QDS OR 500mg to 1000mg BDS*
 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Course length correct
* *All options are 5 days*
 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

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** | CRP test used? |  |  | No target\* |
| **B** | If CRP test used management followed NICE CG191 guidance[3](#Ref3) |  |  | 100% |
| **C** | No antibiotic given (lower figure if back-up, delayed strategy used by clinician) |  |  | 30% - 70% |
| **D** | Back-up/delayed antibiotic given with advice about how to access |  |  | 0% - 40% |
| **E** | Immediate antibiotic given with advice on compliance[7](#Ref7) |  |  | 0% - 30% |
| **F** | Management appropriate for clinical presentation? |  |  | 100% |

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| **Providing Advice**  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **G** | Advice given on natural history and average length of illness – *21 days* |  |  | 100% |
| **H** | Advice given about managing symptoms (*Self-care advice*) |  |  |
| **I** | Information about seeking further help or re-consulting (*Safety netting advice*) |  |  |
| **J** | Information given about antibiotic use and resistance  |  |  |
| **K** | [Shared the TARGET Treating Your Infection RTI leaflet](http://www.rcgp.org.uk/clinical-and-research/toolkits/~/link.aspx?_id=9FCF9DA4B4A045519593320478DFD9E7&_z=z) |  |  |

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| **If antibiotics were prescribed: (N= …….. )** |
| **L** | Antibiotic choice correct – *1st choice: doxycycline OR amoxicillin (preferred in pregnancy), 2nd amoxicillin, OR clarithromycin OR erythromycin (preferred if macrolide needed in pregnancy)* |  |  | 100% |
| **M** | Dose/frequency correct –  *doxycycline 200mg stat then 100mg OD/ amoxicillin 500mg TDS/ clarithromycin 250 to 500 mg BDS/ erythromycin 250mg to 500mg QDS OR 500mg to 1000mg BDS* |  |  |
| **N** | Course length correct – *all options are a 5-day course* |  |  |

\**CRP is not recommended in all patients with acute cough*

**Step 3**: How did you do? Use the calculations below to check compliance with NICE guidance.

1. **If CRP used?** (Total row A)
2. **On whether to prescribe an antibiotic**

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

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)**

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

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

$$\left(\frac{All parameters of antibiotic prescribing correct (rows L+M+N)}{Total number of patients prescribed an antibiotic (rows D+E)}\right) X 100$$

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

1. Promote use of NICE [antimicrobial / management of infection guidelines](https://www.nice.org.uk/guidance/health-protection/communicable-diseases/antimicrobial-stewardship) by all in practice.
2. Consider use of CRP point of care testing when considering antibiotics and/or doubt the need for antibiotics (it is not recommended in all patients with acute cough only in line with NICE guidance, if there is diagnostic uncertainty or patient pressure or antibiotic being considered).
3. Encourage use of TARGET Treating Your Infection – Respiratory Tract infection (TYI-RTI) [leaflet.](https://elearning.rcgp.org.uk/mod/book/view.php?id=12647&chapterid=444)
4. Share TARGET TYI-RTI leaflet on clinical system.
5. Encourage consistent message from different staff and when patients re-attend.
6. Encourage others to perform [audit](https://elearning.rcgp.org.uk/mod/book/view.php?id=12649).
7. Re-audit in 4 months - identify a date when you will repeat the [audit](https://elearning.rcgp.org.uk/mod/book/view.php?id=12649).
8. Record actions required, especially when compliance with primary care guidance is less than 80%.
9. Make use of [TARGET toolkit](https://elearning.rcgp.org.uk/course/view.php?id=553).
10. 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**

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