NICE National Institute for Health and Care Excellence

Respiratory tract infections – antibiotic prescribing

Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care

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Introduction

Most people will develop an acute respiratory tract infection (RTI) every year. RTIs are also the commonest acute problem dealt with in primary care – the 'bread and butter' of daily practice. Management of acute RTIs in the past concentrated on advising prompt antibiotic treatment of presumptive bacterial infections. This advice was appropriate, in an era of high rates of serious suppurative and non-suppurative complications, up to and including the immediate post-war period. However, in modern developed countries, rates of major complications are now low. In addition, there is no convincing evidence, either from international comparisons or from evidence within countries, that lower rates of prescribing are associated with higher rates of complications. Therefore much of the historically high volume of prescribing to prevent complications may be inappropriate. After a fall in antibiotic use in the late 1990s, antibiotic prescribing in the UK has now reached a plateau and the rate is still considerably higher than the rates of prescribing in other northern European countries. Most people presenting in primary care with an acute uncomplicated RTI will still receive an antibiotic prescription – with many doctors and patients believing that this is the right thing to do.

There may be several problems with this. First, complications are now much less common, so the evidence for symptomatic benefit should be strong to justify prescribing; otherwise many patients may have unnecessary antibiotics, needlessly exposing them to side effects. Second, except in cases where the antibiotic is clinically necessary, patients, and their families and friends, may get the message from healthcare professionals that antibiotics are helpful for most infections. This is because patients will understandably attribute their symptom resolution to antibiotics, and thus maintain a cycle of 'medicalising' self-limiting illness. Third, international comparisons make it clear that antibiotic resistance rates are strongly related to antibiotic use in primary care. This is potentially a major public health problem both for our own and for future generations; unless there is clear evidence of benefit, we need to maintain the efficacy of antibiotics by more judicious antibiotic prescribing.

Following a review of the evidence, we have tried to produce simple, practical guidance for antibiotic prescribing for all of the common, acute, uncomplicated, RTIs, with recommendations for targeting of antibiotics. The guideline includes suggestions for safe methods of implementing alternatives to an immediate antibiotic prescription – including the 'delayed' antibiotic prescription.

The Guideline Development Group (GDG) recognised the concern of GPs and patients regarding the danger of developing complications. While most patients can be reassured that they are not at risk of major complications, the difficulty for prescribers lies in identifying the small number of patients who will suffer severe and/or prolonged illness or, more rarely, go on to develop complications. The GDG struggled to find much good evidence to inform this issue. This is clearly an area where further research is needed. In the meantime, GPs need to take 'safety-netting' approaches in the case of worsening illness, either by using delayed prescriptions or by prompt clinical review.

This is one of the new National Institute for Health and Clinical Excellence (NICE) short clinical guidelines. The methodology is of the same rigour as for the standard NICE clinical guidelines, but the scope is narrower, and the development and consultation phases have been compressed. In particular, the detailed issues surrounding the diagnosis of acute RTIs and the use of diagnostic tests during the consultation could not be adequately dealt with in such a short timescale. We hope that the guideline will be welcomed by those who manage and experience the clinical care of acute respiratory infections.

Paul Little
Professor of Primary Care Research, GP and Chair, Guideline Development Group

Patient-centred care

This guideline offers best practice advice on the care of adults and children (3 months and older) with RTIs, for whom immediate antibiotic prescribing is not indicated.

Treatment and care should take into account patients' needs and preferences. Adults and children (or their parents/carers) for whom immediate antibiotic prescribing is not indicated should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If patients do not have the capacity to make decisions, healthcare professionals should follow the Department of Health's advice on consent and the code of practice that accompanies the Mental Capacity Act. In Wales, healthcare professionals should follow advice on consent from the Welsh Government.

If the patient is under 16, healthcare professionals should follow the guidelines in the Department of Health's Seeking consent: working with children.

Good communication between healthcare professionals and patients is essential. It should be supported by evidence-based written information tailored to the patient's needs. Treatment and care, and the information patients are given about it, should be culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English.

Families and carers should also be given the information and support they need.

Care of young people in transition between paediatric and adult services should be planned and managed according to the best practice guidance described in Transition: getting it right for young people.

Adult and paediatric healthcare teams should work jointly to provide assessment and services to young people with respiratory tract infection and any possible complications. Diagnosis and management should be reviewed throughout the transition process, and there should be clarity about who is the lead clinician to ensure continuity of care.

1 Guidance

The following guidance is based on the best available evidence. The full guideline gives details of the methods and the evidence used to develop the guidance.

The clinical effectiveness and cost effectiveness of antibiotic management strategies for respiratory tract infections (RTIs)

1.1 At the first face-to-face contact in primary care, including walk-in centres and emergency departments, adults and children (3 months and older) presenting with a history suggestive of the following conditions should be offered a clinical assessment:

- acute otitis media
- acute sore throat/acute pharyngitis/acute tonsillitis
- common cold
- acute rhinosinusitis
- acute cough/acute bronchitis.

The clinical assessment should include a history (presenting symptoms, use of over-the-counter or self medication, previous medical history, relevant risk factors, relevant comorbidities) and, if indicated, an examination to identify relevant clinical signs.

1.2 Patients' or parents'/carers' concerns and expectations should be determined and addressed when agreeing the use of the three antibiotic prescribing strategies (no prescribing, delayed prescribing and immediate prescribing).

1.3 A no antibiotic prescribing strategy or a delayed antibiotic prescribing strategy should be agreed for patients with the following conditions:

- acute otitis media

- acute sore throat/acute pharyngitis/acute tonsillitis
- common cold
- acute rhinosinusitis
- acute cough/acute bronchitis.

Depending on clinical assessment of severity, patients in the following subgroups can also be considered for an immediate antibiotic prescribing strategy (in addition to a no antibiotic or a delayed antibiotic prescribing strategy):

- bilateral acute otitis media in children younger than 2 years
- acute otitis media in children with otorrhoea
- acute sore throat/acute pharyngitis/acute tonsillitis when three or more Centor criteria are present.

1.4 For all antibiotic prescribing strategies, patients should be given:

- advice about the usual natural history of the illness, including the average total length of the illness (before and after seeing the doctor):
  - acute otitis media: 4 days
  - acute sore throat/acute pharyngitis/acute tonsillitis: 1 week
  - common cold: 1½ weeks
  - acute rhinosinusitis: 2½ weeks
  - acute cough/acute bronchitis: 3 weeks
- advice about managing symptoms, including fever (particularly analgesics and antipyretics). For information about fever in children younger than 5 years, refer to 'Feverish illness in children' (NICE clinical guideline 47).

1.5 When the no antibiotic prescribing strategy is adopted, patients should be offered:

- reassurance that antibiotics are not needed immediately because they are likely to make little difference to symptoms and may have side effects, for example, diarrhoea, vomiting and rash
- a clinical review if the condition worsens or becomes prolonged.

1.6 When the delayed antibiotic prescribing strategy is adopted, patients should be offered:

- reassurance that antibiotics are not needed immediately because they are likely to make little difference to symptoms and may have side effects, for example, diarrhoea, vomiting and rash
- advice about using the delayed 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
- advice about re-consulting if there is a significant worsening of symptoms despite using the delayed prescription.

  A delayed prescription with instructions can either be given to the patient or left at an agreed location to be collected at a later date.

Identifying those patients with RTIs who are likely to be at risk of developing complications

1.7 An immediate antibiotic prescription and/or further appropriate investigation and management should only be offered to patients (both adults and children) in the following situations:

- if the patient is systemically very unwell
- if the patient has symptoms and signs suggestive of serious illness and/or complications (particularly pneumonia, mastoiditis, peritonsillar abscess, peritonsillar cellulitis, intraorbital and intracranial complications)
- if the patient is at high risk of serious complications because of pre-existing comorbidity. This includes patients with significant heart, lung, renal, liver or

neuromuscular disease, immunosuppression, cystic fibrosis, and young children who were born prematurely

- if the patient is older than 65 years with acute cough and two or more of the following criteria, or older than 80 years with acute cough and one or more of the following criteria:
  - hospitalisation in previous year
  - type 1 or type 2 diabetes
  - history of congestive heart failure
  - current use of oral glucocorticoids.

  For these patients, the no antibiotic prescribing strategy and the delayed antibiotic prescribing strategy should not be considered.

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from our website – click on 'How this guidance was developed'.

The aim of this guideline is to provide evidence-based recommendations to guide healthcare professionals in the appropriate prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care.

3 Implementation

NICE has developed tools to help organisations implement this guidance.

4 Research recommendations

- Which subgroups of adults and children with RTIs presenting in primary care settings are most likely to benefit from an immediate antibiotic prescribing strategy in terms of symptomatic management and prevention of complications?
- What is the clinical and cost effectiveness of a delayed antibiotic prescribing strategy compared with both a no antibiotic prescribing strategy and an immediate antibiotic prescribing strategy for acute rhinosinusitis?
- What is the clinical and cost effectiveness of differing methods of delivering a delayed antibiotic prescribing strategy in primary care for adults and children presenting with RTIs?
- What are the rates of prescription, dispensing and complications in adults and children with RTIs when different delayed prescribing strategies or no prescribing are used, and how does any potential difference in risk of developing complications affect the cost effectiveness of a delayed antibiotic prescribing strategy or a no prescribing strategy?
- Which clinical features of children and adults presenting in primary care with RTIs are associated with the development of serious complications and need for hospitalisation?
- Do patients and parents/carers' preferences regarding antibiotic management strategies (immediate, delayed and no prescribing strategy) for RTIs differ according to ethnicity and socioeconomic status?

Health economics

- How does a delayed prescribing strategy affect the risk of patients developing complications after an initial episode of RTI and how does this potential difference in risk affect the cost effectiveness of a delayed prescribing strategy?
- Research is needed in assessing the health-related quality of life of people with RTIs, in particular when using generic measures such as the EQ-5D. In addition, further research is needed in applying health-related quality of life weights when investigating interventions for short-term illnesses such as RTIs.

5 Other versions of this guideline

5.1 Full guideline

The full guideline, 'Respiratory tract infections – antibiotic prescribing: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care' contains details of the methods and evidence used to develop the guideline.

5.2 Information for the public

NICE has produced information for the public explaining this guideline.

We encourage NHS and voluntary sector organisations to use text from this booklet information in their own information materials.

6 Updating the guideline

NICE clinical guidelines are updated so that recommendations take into account important new information. New evidence is checked 3 years after publication, and healthcare professionals and patients are asked for their views; we use this information to decide whether all or part of a guideline needs updating. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations. Please see our website for information about updating the guideline.

Appendix A: The Guideline Development Group and the Short Clinical Guidelines Technical Team

Guideline Development Group

The GDG was composed of relevant healthcare professionals, patient representatives and NICE technical staff.

The members of the GDG are listed below.

Paul Little
Professor of Primary Care Research and General Practitioner (GDG Chair)

Nicky Coote
Consultant Paediatrician

Anne Joshua
Associate Director of Pharmacy, NHS Direct

Cliodna McNulty
Consultant Microbiologist

Cheryl Salmon
Patient/carer Representative

Mike Sharland
Consultant Paediatrician

Genine Riley
Senior Pharmaceutical Adviser

Matthew Thompson
General Practitioner and Clinical Lecturer in Primary Health Care

Mark Woodhead
Consultant in Respiratory Medicine

The following individual was not a full member of the GDG but was co-opted onto the group as an expert adviser:

Matt Griffiths
Professor of Prescribing and Medicines Management

Short Clinical Guidelines Technical Team

The Short Clinical Guidelines Technical Team was responsible for this guideline throughout its development. It was responsible for preparing information for the GDG, for drafting the guideline and for responding to consultation comments. The following people, who are employees of NICE, made up the technical team working on this guideline.

Dr Tim Stokes
Guideline Lead and Associate Director

Emma Banks
Coordinator

Janette Boynton
Senior Information Specialist

Nicole Elliott
Commissioning Manager

Michael Heath
Project Manager

Ruth McAllister
Analyst, Health Economics

Francis Ruiz
Technical Adviser in Health Economics

Toni Tan
Technical Analyst

Appendix B: Guideline review panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

Robert Walker
General Practitioner, Workington (Chair)

Ailsa Donnelly
Lay member

Mark Hill
Head of Medical Affairs, Novartis Pharmaceuticals UK Ltd

John Harley
Clinical Governance and Prescribing Lead and General Practitioner, North Tees Primary Care Trust

About this guideline

NICE clinical guidelines are recommendations about the treatment and care of people with specific diseases and conditions in the NHS in England and Wales.

The guideline was developed by the Short Clinical Guidelines Technical Team. The team worked with a group of healthcare professionals (including consultants, GPs and nurses), patients and carers, and technical staff, who reviewed the evidence and drafted the recommendations. The recommendations were finalised after public consultation.

The methods and processes for developing NICE clinical guidelines are described in The guidelines manual. This guideline was developed using the short clinical guideline process.

We have produced information for the public explaining this guideline. Tools to help you put the guideline into practice and information about the evidence it is based on are also available.

Changes after publication

20 December 2011: Copied into NICE guideline template, links checked.

October 2013: Minor maintenance

Your responsibility

This guidance represents the view of NICE, which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

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