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GUIDELINES

Suspected acute respiratory infection in over 16s: assessment at first presentation and initial management—summary of NICE guidance

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What you need to know

- For patients with acute respiratory infection who can be cared for at home, ensure they understand signs of deterioration and when to seek further help
- Assess patients with a clinical diagnosis of pneumonia using CRB65 to inform a shared decision about the right care pathway for them
- Point-of-care biomarker and microbiological tests alone should not determine care at first presentation

Acute respiratory tract infections (ARIs) represent a significant burden on healthcare services, particularly during the winter season when the incidence of respiratory infection is highest. To relieve this pressure, NHS England has introduced a range of measures including ARI hubs and virtual wards. In addition to assessing and caring for patients whose clinical presentation might indicate a respiratory tract infection, healthcare practitioners must also engage in decision making with the patient about the most appropriate care pathway from a growing number of options.

The National Institute for Health and Care Excellence (NICE) was asked to produce new guidance to support healthcare practitioners in assessing patients who newly present to primary or secondary care with undifferentiated symptoms that might be indicative of an ARI. Overall, the evidence base was insufficient to make robust evidence based recommendations and highlighted the primacy of clinical judgment for making initial decisions about treatment and referral. This article summarises the recommendations on the assessment at first presentation and initial management of people over 16 with suspected ARI, published in October 2023,[1] which were produced to complement already published NICE guidelines on the diagnosis and management of pneumonia.[2]

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the guideline development group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are given in italics in square brackets. Evidence certainty is based on GRADE criteria (box 1).

Box 1: GRADE Working Group grades of evidence

- High certainty—we are very confident that the true effect lies close to that of the estimate of the effect.
- Moderate certainty—we are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.
- Low certainty—our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect.
- Very low certainty—we have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect.

At first contact with healthcare services

Most ARIs are self-limiting and people can usually manage their symptoms at home with appropriate advice and information about self-care. At first contact, identify possible red flags for sepsis or other serious illness. Provide appropriate safety netting advice to people who are self-managing. Although the ARI guideline does not contain detailed information about self-care and safety netting, for specific symptoms (such as acute cough, acute sinusitis, and acute sore throat) information can be found in the NICE antimicrobial prescribing guidelines.[3-5]

- In people with a suspected ARI, think "could this be sepsis?" and assess in line with the section on identifying people with suspected sepsis in NICE's guideline on sepsis.[6]
- Offer self-care advice to people whose symptoms can be managed at home. Ensure they know the likely duration of illness and when and how to seek medical help, for example, if symptoms worsen rapidly or significantly, do not improve over a specified time, or they become systemically very unwell.

[Recommendations based on the committee's experience and expertise]

Remote contact with healthcare services at first presentation

For many healthcare professionals, first contact with a patient is via a remote appointment, often by telephone, to assess whether a person could be safely cared for at home or whether a face-to-face consultation is necessary, and to determine the urgency of appointment. No evidence supported identifying specific symptoms by remote assessment as a reliable indicator of severe illness, so clinical judgment informed by the knowledge and experience of the clinician must be relied on.

When considering remote prescribing of antimicrobials, if a person is potentially ill enough to require a course of antimicrobials, then it is preferable to arrange an assessment face to face and that this should be usual practice.

- Assess people to determine whether their symptoms can be safely managed at home or whether they have symptoms and signs that require further investigation; for example, symptoms and signs of concern for lower respiratory tract infection include breathlessness or confusion that is new or increased. If symptoms can be managed at home, offer self-care advice.
- Arrange or refer the person for a face-to-face assessment if:
  - An adequate assessment cannot be made remotely (for example, because the person has difficulty communicating)
  - A serious illness is suspected (for example, pneumonia or non-infective causes of symptoms and signs)
  - They have a comorbidity that may be exacerbated by an ARI (for example, frailty or chronic obstructive pulmonary disease) or they are immunosuppressed.
  - Any decision regarding the urgency of a face-to-face assessment, and where to refer (when appropriate), should be based on severity of symptoms and rate of deterioration.
- Do not routinely prescribe antimicrobials based on a remote assessment alone unless the person knows when and how to seek further medical help and there is a sound reason to prescribe remotely, for example:
  - The person cannot or would find it very difficult to attend a face-to-face appointment and/or
  - The severity of illness can be adequately assessed remotely and the risk of an alternative diagnosis is low and
  - The prescriber is confident that antimicrobials are needed.

  [Recommendations based on the committee's experience and expertise]

In-person contact with healthcare services at first presentation

In face-to-face clinical situations, clinical judgment is the most effective way to assess a patient's risk of severe disease. Evidence review (including data from systematic reviews) for this guideline suggests some tests, including PCR and non-PCR nucleic acid amplification tests and multiplex PCR tests, have good diagnostic accuracy for the diagnosis of influenza, ranging from very low to moderate quality of evidence suggesting >90% sensitivity and specificity rates. However, the presence of influenza does not mean absence of bacterial co-infection, and the results of viral testing alone should not guide making antibiotic prescribing decisions.

If there is uncertainty about the necessity of prescribing an antibiotic for a clinically significant bacterial ARI, then when available, a point-of-care C reactive protein (CRP) test can help inform prescribing decisions. The NICE pneumonia guideline recommended CRP cut-off values of 20 and 100 mg/L as useful values to support prescribing decisions.[2] Evidence from a systematic review suggested that a CRP threshold of 20 mg had a relatively poor diagnostic accuracy (sensitivity 83%, specificity 55%, very low to moderate confidence evidence) meaning that it is likely that many people who do not have a lower respiratory tract infection will have a CRP >20 mg/L. Conversely, most people who do not have a lower respiratory tract infection will have a CRP level below 100 mg/L (sensitivity 52%, specificity 91%, moderate to low confidence evidence). CRP testing may be limited, however, by a time lag for onset of symptoms, and CRP response varies by ethnicity, age, and in the peri- and postpartum periods.

CRB-65 is a severity assessment tool when making a clinical diagnosis of pneumonia in primary care to inform the care pathway (box 2).[8] In addition to calculating a score, consider the patient's needs and preferences and their social circumstances (for example a frail person living alone is more likely to need further assessment and monitoring than a person living in a family).

Box 2: CRB65 score for risk assessment of pneumonia

CRB65 score is calculated by giving one point for each of the following prognostic features:

- Confusion (abbreviated mental test score of 8 or less, or new disorientation in person, place, or time). For guidance on delirium, see NICE's guideline on delirium[7]
- Raised respiratory rate (30 breaths/min or more)
- Low blood pressure (systolic less than 90 mmHg or diastolic 60 mmHg or less)
- Age 65 or older.

People are stratified for risk of death (within 30 days) as follows:

- 0: low risk (less than 1% mortality risk)
- 1 or 2: intermediate risk (1 to 10% mortality risk)
- 3 or 4: high risk (more than 10% mortality risk).

- For people with symptoms and signs of an ARI, use clinical assessment to make a diagnosis and decide whether to prescribe antimicrobials, either immediately or with a back-up prescription, and offer them self-care advice.
- Consider the person's ARI symptoms and signs in the context of their overall health and social circumstances. The threshold for treatment or referral for further assessment may be lower for people who are more likely to have a poor outcome, for example, people with comorbidities or multimorbidity and people who are frail.
- Do not offer rapid point-of-care microbiological tests or influenza (flu) tests to people with suspected ARI to determine whether to prescribe antimicrobials. Testing may be indicated for surveillance or infection control.
- If, after clinical assessment, it is unclear if antibiotics are needed for someone with a lower respiratory tract infection, consider a point-of-care CRP test to support clinical decision making and:
  - Offer immediate antibiotics if the CRP level is more than 100 mg/L
  - Consider a back-up antibiotic prescription if the CRP level is between 20 mg/L and 100 mg/L
  - Do not routinely offer antibiotics if the CRP level is less than 20 mg/L.
- Follow seasonal advice from the UK Health Security Agency on managing influenza-like illness.
- If a clinical diagnosis of pneumonia has been made, carry out a risk assessment using the CRB65 scoring system.
- Use clinical judgment together with the CRB65 score (bearing in mind this can be affected by other factors, for example, comorbidities or pregnancy) to inform decisions about whether

people with a clinical diagnosis of pneumonia need hospital assessment as follows:

- Consider hospital assessment for people with a CRB65 score of 2 or more
- Discuss the options with people with a score of 1 and make a shared decision about the best care pathways for them, for example, supported home-based care using a virtual ward or community intervention team
- Consider home based care for people with a CRB65 score of 0.

[Recommendations based on the committee's experience and expertise. The recommendations about CRP testing and about CRB65 are based on evidence from systematic reviews seen by the committee and on recommendations in the 2014 NICE guideline on pneumonia[2]]

Implementation

Acute services for ARI in the UK are changing rapidly with the advent of ARI hubs and ARI virtual wards, and a variety of models are being adopted around the UK. Clinicians are limited in what symptoms and degree of severity they can assess remotely, and if there is suspicion of more serious illness, then people should be invited to a face-to-face appointment where possible. Although only a small subgroup of people with ARI need a face-to-face appointment, these recommendations may lead to more face-to-face follow-up appointments after remote assessment, and will affect general practices differentially depending on their current threshold of delivering care remotely. Remote antibiotic prescription rates are anticipated to decrease with a corresponding increase in number of face-to-face reviews.

Many primary care settings do not have access to point-of-care CRP testing and therefore may not be able to use it as an adjunct to decision making. While CRP testing may improve clinical decision making around the need to prescribe antibiotics for ARI, it does come with an increased financial and time cost (processing and reviewing of results) that may be difficult for resource-limited primary care services to implement.

Future research

- How accurate are early warning scores such as NEWS2 and CRB65 when applied to remote and face-to-face assessments?
- How can early warning scores help healthcare practitioners make clinical decisions about care pathways, for example, sending people home, to ARI hubs or virtual wards, or to same day emergency care?
- What is the role of point-of-care microbiological testing for guiding management in people with symptoms and signs of an ARI?

Guidelines into practice

- How do you assess a patient for suspected acute respiratory infection, both remotely and in person?
- Think about the last few patients you reviewed with suspected acute respiratory infection, how might the presence or absence of a test result (such as point-of-care CRP or microbiology result) influence your clinical management?

Further information on the guidance

This guidance was developed by the NICE's Guideline Development Team B in accordance with NICE guideline methodology (www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf). A Guideline Committee (GC) was established by the team, which incorporated healthcare and allied healthcare professionals (one consultant respiratory physician, one "111" clinical adviser, one consultant geriatrician, one consultant in emergency and intensive care medicine, two general practitioners, one nurse consultant in respiratory medicine, one emergency care practitioner, one advanced clinical practitioner, two consultant microbiologists, and one principal pharmacist) and two lay members.

The guideline is available at https://www.nice.org.uk/guidance/ng237.

The GC identified relevant review questions and collected and appraised clinical and cost effectiveness evidence. Quality ratings of the evidence were based on GRADE methodology (www.gradeworkinggroup.org). These relate to the quality of the available evidence for assessed outcomes or themes rather than the quality of the study. The GC agreed recommendations for clinical practice based on the available evidence or, when evidence was not found, based on their experience and opinion using informal consensus methods.

The scope and the draft of the guideline went through a rigorous reviewing process, in which stakeholder organisations were invited to comment; the GC took all comments into consideration when producing the final version of the guideline.

NICE will conduct regular reviews after publication of the guidance, to determine whether the evidence base has progressed significantly enough to alter the current guideline recommendations and require an update.

How patients were involved in the creation of this article

CP and AT were lay members on the Guideline Committee. Committee members involved in this guideline update included lay members who contributed to the formulation of the recommendations summarised here.

The evidence reviews underpinning this guideline were produced by the NIHR Bristol Evidence Synthesis Group, NIHR West Midlands Evidence Synthesis Group, and NIHR York Evidence Synthesis Group (YES).

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Contributorship and guarantor: All authors confirm that they meet all four authorship criteria in the ICMJE uniform requirements. CC prepared the draft of this manuscript and led the team within NICE that produced the guideline. TB, NM, and AT interpreted the evidence and generated the recommendations with other committee members. All authors contributed to the draft of this article, helped revise the manuscript, and approved the final version for publication and agree to be accountable for the accuracy and integrity of the work.

CC is the guarantor for this article.

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