

# Suspected acute respiratory infection in over 16s: assessment at first presentation and initial management

NICE guideline

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## Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should [assess and reduce the environmental impact of implementing NICE recommendations](#) wherever possible.

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This guideline partially replaces CG191.

This guideline is the basis of QS210.

## Overview

This guideline covers assessment of people aged 16 and over with symptoms and signs of acute respiratory infection (bacterial or viral) at first remote or in-person contact with NHS services. It also covers the initial management of any infections. It aims to support healthcare practitioners in making sure that people's treatment follows the best care pathway. It forms part of a suite of work on [virtual wards](#) being undertaken by NICE.

This guideline replaces recommendation 1.1.1, and updates recommendations 1.2.1 and 1.2.2 from [NICE guideline CG191](#) (published December 2014).

## Who is it for?

- Healthcare practitioners
- People aged 16 and over with suspected acute respiratory infection, their families and carers

## Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

[Making decisions using NICE guidelines](#) explains how we use words to show the strength (or certainty) of our recommendations and has information about prescribing medicines (including off-label use), professional guidelines, standards, and laws (including on consent and mental capacity), and safeguarding.

This guideline should be read alongside NICE's antimicrobial prescribing guidelines on:

- [acute cough](#)
- [acute exacerbation of chronic obstructive pulmonary disease \(COPD\)](#)
- [acute sinusitis](#)
- [acute sore throat](#).

This guideline does not cover people with known COVID-19. See [NICE's guidelines on COVID](#) for advice on managing COVID-19 infection.

It does not cover the ongoing management of [acute respiratory infection \(ARI\)](#) after first assessment and initial management.

For advice on:

- diagnosing, monitoring and managing chronic asthma, see [NICE's guideline on asthma](#)
- diagnosing and managing COPD in over 16s, see [NICE's guideline on COPD](#)
- identifying and managing tuberculosis, see [NICE's guideline on tuberculosis](#).

## 1.1 All first contact with NHS services

These recommendations cover all people with symptoms and signs of an ARI who contact NHS services whether remotely or in person.

- 1.1.1 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](#).
- 1.1.2 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.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the [rationale and impact section on all first contact with NHS services](#).

Full details of the evidence and the committee's discussion are in:

- [evidence review A: signs, symptoms and early warning scores for predicting severe illness](#)
- [evidence review B: rapid tests to inform triage and antibiotic prescribing decisions](#)
- [evidence review C: diagnostic accuracy of point-of-care tests for viral versus bacterial infection](#)
- [evidence summary D: acute respiratory infection](#).

## 1.2 Remote contact with NHS services at first presentation

These recommendations cover people with symptoms and signs of an ARI using remote means such as telephone, video call, online app, email or text message for initial assessment by NHS services, including NHS 111, 999 call centres and general practice.

- 1.2.1 Approach all remote assessments in a holistic, person-centred way, including checking that the person is able to use any digital technology being suggested and offering alternatives, when necessary.
- 1.2.2 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 (see [recommendation 1.1.2](#)).

1.2.3 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.

1.2.4 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.

For a short explanation of why the committee made these recommendations and how they might affect practice, see the [rationale and impact section on remote contact with NHS services at first presentation](#).

Full details of the evidence and the committee's discussion are in:

- [evidence review A: signs, symptoms and early warning scores for predicting severe illness](#)
- [evidence review B: rapid tests to inform triage and antibiotic prescribing decisions](#)
- [evidence review C: diagnostic accuracy of point-of-care tests for viral versus bacterial infection](#)
- [evidence summary D: acute respiratory infection](#).

## 1.3 In-person contact with NHS services at first presentation

These recommendations cover people with symptoms and signs of an ARI who present in-person at sites that provide NHS services, including general practice and community pharmacies.

- 1.3.1 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 (see [recommendation 1.1.2](#)). If pneumonia is suspected, see also the [section on clinical diagnosis of pneumonia](#).
- 1.3.2 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. **[amended November 2023]**



- 1.3.3 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.
- 1.3.4 If, after clinical assessment, it is unclear if antibiotics are needed for someone with a lower respiratory tract infection, consider a point-of-care C-reactive protein (CRP) test to support clinical decision making and:
- offer immediate antibiotics if the CRP level is more than 100 mg/litre
  - consider a back-up antibiotic prescription if the CRP level is between 20 mg/litre and 100 mg/litre
  - do not routinely offer antibiotics if the CRP level is less than 20 mg/litre.
- 1.3.5 Follow seasonal advice from the UK Health Security Agency (UKHSA) on managing influenza-like illness.

## Clinical diagnosis of pneumonia

- 1.3.6 If a clinical diagnosis of pneumonia has been made, carry out a risk assessment using the CRB65 scoring system (see box 1).
- 1.3.7 Use clinical judgement 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.

See [NICE's guidelines on pneumonia in adults: diagnosis and management and antimicrobial prescribing for community-acquired pneumonia](#) for further details about the diagnosis and management of pneumonia.

**Box 1: CRB65 score for risk assessment of pneumonia**

CRB65 score is calculated by giving 1 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](#)
- raised respiratory rate (30 breaths per minute or more)
- low blood pressure (systolic less than 90 mmHg or diastolic 60 mmHg or less)
- age 65 years or more.

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 a short explanation of why the committee made these recommendations and how they might affect practice, see the [rationale and impact section on in-person contact with NHS services at first presentation](#).

Full details of the evidence and the committee's discussion are in:

- [evidence review A: signs, symptoms and early warning scores for predicting severe illness](#)
- [evidence review B: rapid tests to inform triage and antibiotic prescribing decisions](#)
- [evidence review C: diagnostic accuracy of point-of-care tests for viral versus bacterial infection](#)
- [evidence summary D: acute respiratory infection](#).

## Terms used in this guideline

This section defines terms that have been used in a particular way for this guideline.

### **Acute respiratory infection (ARI)**

An acute illness (present for 21 days or less) affecting the respiratory tract with symptoms such as cough, sore throat, fever, sputum production, breathlessness, wheeze or chest discomfort or pain, and no alternative explanation.

### **Back-up prescription**

A prescription for use at a later date if symptoms worsen.

# Recommendations for research

The guideline committee has made the following key recommendations for research.

## 1 Early warning scores in different settings

How accurate are early warning scores such as [NEWS2](#) and CRB65, when applied to remote assessments of people with a suspected ARI via:

- 111 and 999 call centres?
- primary care?

How can the scores help to make clinical decisions about care pathways, for example, sending people home, to [ARI virtual wards](#), or to same day emergency care?

For a short explanation of why the committee made this recommendation for research, see the [rationale section on remote contact with NHS services at first presentation](#).

Full details of the evidence and the committee's discussion are in [evidence summary D: acute respiratory infection](#).

How accurate are early warning scores such as [NEWS2](#) and CRB65, when applied to face-to-face assessments of people with a suspected ARI in:

- primary care, community pharmacy and other non-hospital, low-prevalence settings?
- [ARI hubs](#)?

How can the scores help to make clinical decisions about care pathways, for example, sending people home, to [ARI virtual wards](#), or to same day emergency care?

For a short explanation of why the committee made this recommendation for research, see the [rationale section on in-person contact with NHS services at first presentation](#).

Full details of the evidence and the committee's discussion are in [evidence summary D: acute respiratory infection](#).

## 2 Point-of-care microbiological tests

What is the role of point-of-care microbiological testing for guiding management in people with symptoms and signs of an ARI, taking into account good antimicrobial stewardship, cost, and clinical and cost effectiveness of the tests, and time taken to do the test and get a result?

For a short explanation of why the committee made this recommendation for research, see the [rationale section on in-person contact with NHS services at first presentation](#).

Full details of the evidence and the committee's discussion are in [evidence summary D: acute respiratory infection](#).

## 3 Costing antimicrobial stewardship

How can we quantify the impact on antimicrobial resistance of interventions that safely reduce antibiotic prescribing, in terms of future healthcare costs and health-related quality of life?

For a short explanation of why the committee made this recommendation for research, see the [rationale section on in-person contact with NHS services at first presentation](#).

Full details of the evidence and the committee's discussion are in [evidence summary D: acute respiratory infection](#).

## Rationale and impact

These sections briefly explain why the committee made the recommendations and how they might affect practice.

### All first contact with NHS services

[Recommendations 1.1.1 and 1.1.2](#)

#### Why the committee made the recommendations

The committee agreed that it was important to consider sepsis in people with a suspected acute respiratory infection (ARI) because, in their experience, sepsis was often secondary to a respiratory infection.

They also agreed that people whose symptoms can be managed at home should be given self-care advice and information about when to seek medical help. They also noted most ARIs are self-limiting.

#### How the recommendations might affect practice

The recommendations reinforce good practice about the need to consider sepsis when assessing people with suspected ARIs, and when to offer self-care advice and what it should cover.

[Return to recommendations](#)

### Remote contact with NHS services at first presentation

[Recommendations 1.2.1 to 1.2.4](#)

#### Why the committee made the recommendations

There was no evidence on remote assessments for people with suspected ARI so the

committee used their expertise and experience to make recommendations.

People contacting NHS services remotely do not have equal access to, or ability to use, digital technology. The committee agreed it was important to check the person is capable of using the technology being proposed and to offer alternatives, when necessary. They acknowledged that most remote assessments were by telephone and that most people could communicate that way.

People might have difficulties communicating if they have symptoms such as wheezing or breathlessness. The committee noted that the NHS has a duty to provide reasonable adjustments for people who need them, for example, face-to-face appointments or home visits.

There was insufficient evidence to make a recommendation about using specific symptoms and signs to diagnose pneumonia, and no evidence in this area for other types of ARIs. As a result, the committee was unable to be specific about the symptoms and signs that indicate a serious ARI. However, using their expertise and experience, they gave some examples of symptoms and signs that might indicate a more serious lower respiratory tract infection.

The committee agreed that it is not always possible to carry out an assessment remotely, because either the person with suspected ARI is having difficulties communicating or because the presentation of symptoms and signs is unclear. They noted that while remote assessments can be a useful tool for identifying people without serious illness, there were advantages to seeing a person face-to-face. They also emphasised that people with serious illness (including pneumonia and non-infective causes of their symptoms and signs) need to be seen face-to-face so a more thorough assessment can be carried out.

The committee agreed that if a person were ill enough to need antimicrobials, then, for safety reasons, they should be seen face-to-face. However, they were aware that some people are unable or find it difficult to attend face-to-face appointments. There might also be cases where the prescriber was confident in their diagnosis and the need for antimicrobials and so a face-to-face assessment was not needed.

The committee agreed that the face-to-face assessment could be in a range of different settings. For many people, face-to-face assessment at a general practice or elsewhere on the acute respiratory infection pathway, for example, [ARI hubs](#), would be the right solution, but if a person was very ill or deteriorating quickly, then it would be important to direct

them to an emergency department or arrange an emergency ambulance if required.

The committee was keen to explore whether any of the established early warning scores such as [NEWS2](#) or CRB65 could help with decision making during remote assessments, including when and where to refer people, so they made a [recommendation for research on using early warning scores in different settings](#).

## How the recommendations might affect practice

Many people already have remote assessments with NHS services, through services such as NHS 111 or telephone appointments with general practice. These recommendations will help healthcare practitioners decide whether a person with an ARI needs to be seen in person and should improve antimicrobial stewardship by reducing the number of antimicrobials prescribed without a face-to-face assessment.

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## In-person contact with NHS services at first presentation

[Recommendations 1.3.1 to 1.3.7](#)

### Why the committee made the recommendations

The committee was concerned that most of the evidence looked at older people, and that data for other groups (particularly those with protected characteristics) was not available. They also noted an absence of evidence about ARI during pregnancy and the post-partum period. They ensured that the specifications for the recommendations for research covered these gaps in the current evidence base.

The committee was disappointed with the overall amount and quality of evidence, which meant that they were unable to make recommendations that gave clear answers about what action a healthcare practitioner should take in a specific clinical situation.

The committee considered people who had an ARI but did not have pneumonia, for example, people with influenza (flu) or a common cold. They agreed that even though many ARIs are self-limiting, some people, such as those with comorbidities or



multimorbidity and people who are frail, are more likely to have a poor outcome. Because of this, the thresholds for treatment or referral might need to be lowered.

The evidence showed that point-of-care (POC) microbiological tests for people with suspected ARIs were not accurate enough to determine whether an infection was bacterial or viral. The economic evidence for POC single pathogen tests was sparse and demonstrated no cost effectiveness and there was no evidence for POC multi-pathogen tests. The committee wanted clearer data about the accuracy of POC microbiological tests to be able to give more specific advice in future, so they made a [recommendation for research on point-of-care microbiological tests](#). In the meantime, they agreed that clinical assessment was more reliable than POC tests for making a diagnosis and determining whether antimicrobials are needed.

The evidence for flu testing showed that some tests were reliable at identifying people with and without flu; however, the committee did not recommend them because the decision to prescribe antivirals for flu-like illness was based mainly on seasonal advice from the UK Health Security Agency (UKHSA). They noted that flu tests could be useful for surveillance and for infection control, but that was outside the remit of this guideline.

The committee agreed that the current evidence base for C-reactive protein (CRP) testing is limited. They discussed some of the limitations of CRP testing, namely:

- a sample taken early in the course of infection can be falsely reassuring
- CRP response is unreliable for certain groups of people, for example, the very elderly, or during pregnancy and the post-partum period, who might not have typical CRP responses
- many primary care settings do not have access to point-of-care CRP testing.

The committee emphasised that prescribing decisions should never be made on the basis of CRP testing alone. Bearing all of this in mind, they agreed that CRP testing could support clinical decision making if, after clinical assessment, a lower respiratory tract infection was suspected but it was unclear if antibiotics were needed.

The evidence showed that using a CRP test result of 100 mg/litre or more as the threshold for giving antibiotics means that most people who test positive will have an infection. However, it also means that some infections may be missed. As the threshold gets lower, the chances of infections being missed reduces. However, the number of people who test

positive but do not have an infection, increases. The committee agreed that a higher threshold was better in terms of antimicrobial stewardship.

The committee was concerned that antimicrobial resistance could not easily be factored into economic evaluations of ARI interventions and they made a [recommendation for research on costing antimicrobial stewardship](#) to address this.

## Clinical diagnosis of pneumonia

The evidence showed that CRB65 might be a useful tool to estimate mortality risk. The committee agreed that it can serve as a useful check on clinical judgement when assessing the severity of pneumonia after a clinical diagnosis has been made. However, they noted that any results need to be considered in the context of other factors such as comorbidities or pregnancy and agreed that confusion can be very hard to assess in some people, for example, if they have a learning disability or autism. The committee discussed the thresholds for referral that were used by the 2014 NICE pneumonia guideline committee and agreed that they matched their expertise and experience.

The committee noted that further research is needed to validate both CRB65 and [NEWS2](#) (the newer version of NEWS) in face-to-face assessments in primary care, community settings and [ARI hubs](#). Therefore, they made a [recommendation for research on using early warning scores in different settings](#) to explore this.

The committee noted the importance of ARI hubs and [ARI virtual wards](#) in caring for people with ARI outside of hospital settings, but there is not enough evidence at present to make explicit recommendations about them.

## How the recommendations might affect practice

The evidence suggests that the recommendations may reduce rates of inappropriate antimicrobial prescribing for people with ARI, and as well as reducing expenditure on unnecessary and ineffective treatments, this is good antimicrobial stewardship. The recommendations about microbiological testing and using CRB65 formed part of [NICE's guideline on pneumonia](#) and should not have any additional resource impact.

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## Context

Before the COVID-19 pandemic, people with suspected acute respiratory infections (ARIs) presented to either NHS 111 or primary care for assessment and management, with more severe cases referred for hospital assessment, or they presented directly to A&E or to the ambulance service if their symptoms were more serious. Since the pandemic, the levels of ARI have increased.

In response to this, the NHS has set up a number of [ARI hubs](#) and [ARI virtual wards](#) to relieve pressure on other parts of the local healthcare system.

NICE has been asked to produce a number of related products to support and inform the expansion of virtual ward provision and other intermediate care areas. This guideline will aid healthcare professionals in deciding where to refer people aged 16 and over with suspected ARIs including referrals to virtual wards and ARI hubs.

## Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the [NICE topic page on respiratory infections](#).

For full details of the evidence and the guideline committee's discussions, see the [evidence reviews](#). You can also find information about [how the guideline was developed](#), including [details of the committee](#).

NICE has produced [tools and resources to help you put this guideline into practice](#). For general help and advice on putting our guidelines into practice, see [resources to help you put NICE guidance into practice](#).

## Update information

**November 2023:** We amended recommendation 1.3.2 to clarify that the threshold for treatment or referral for further assessment may be lower for people with an ARI who are more likely to have a poor outcome.

### Minor changes since publication

**December 2023:** We amended the list of NICE's related guidelines at the start of the recommendations section to clarify other relevant sources of information that are available.

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## Accreditation

