

1            **NATIONAL INSTITUTE FOR HEALTH AND CARE**  
2            **EXCELLENCE**

3            **Guideline**

4            **Acute respiratory infection in over 16s: initial**  
5            **assessment and management**

6            **Draft for consultation, September 2023**  
7

**This guideline covers** the initial assessment and management of suspected acute respiratory infection in over 16s. It forms part of a suite of work on virtual wards being undertaken by NICE.

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

**Who is it for?**

- Healthcare professionals
- People aged 16 and over who have suspected acute respiratory infection, their families and carers

**What does it include?**

- the recommendations
- recommendations for research
- rationale and impact sections that explain why the committee made the recommendations and how they might affect practice
- the guideline context.

Information about how the guideline was developed is on the [guideline's webpage](#). This includes the evidence reviews, the scope, details of the committee and any declarations of interest.

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## 1 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.

### 2 1.1 People with suspected acute respiratory infection

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

5 1.1.1 In people with a suspected [acute respiratory infection](#) (ARI) who appear  
6 seriously ill, assess for sepsis in line with the [section on identifying people](#)  
7 [with suspected sepsis in NICE's guideline on sepsis](#).

8 1.1.2 In people presenting with a suspected upper respiratory tract infection,  
9 see [NICE's guidelines on antimicrobial prescribing for acute sore throat](#)  
10 and [acute cough](#).

### 11 Remote contact with NHS services at first presentation

12 These recommendations cover people with symptoms and signs of an ARI using  
13 remote consultations such as telephone, video call, online app, e-mail, or text  
14 message to contact NHS services, including NHS 111, 999 call centres and GP  
15 practices.

16 1.1.3 Approach all remote consultations in a holistic, person-centred way,  
17 including making sure the person is able to use any digital technology  
18 being used or suggested.

19 1.1.4 For people with symptoms and signs of an ARI and no alternative  
20 explanation (such as asthma), use clinical assessment to make a

- 1 diagnosis. Use the presence of 1 or more of the symptoms and signs in  
2 box 1 to assess for possible pneumonia.

**Box 1: Symptoms and signs with high probability of indicating pneumonia in people with suspected ARI**

- tachypnoea (more than 30 breaths per minute)
- wheezing
- low oxygen saturations (less than 95% in those without prior lung disease)
- fever (more than 38 degrees Celsius)
- systolic BP (less than 90 mmHg)
- tachycardia (more than 100 beats per minute)
- diarrhoea (type 5 or more on the Bristol stool chart)
- impaired consciousness (for example, confusion).

Note: Some of these symptoms and signs will require the person to have access to equipment for measuring vital signs.

- 3  
4 1.1.5 If pneumonia is suspected, or if an adequate assessment cannot be made  
5 remotely, or if there is cause for concern (for example, co-morbidities that  
6 may be exacerbated by an ARI), refer the person for a face-to-face  
7 assessment. The decision about where to refer should be based on  
8 severity of symptoms, rate of deterioration and the presence of any  
9 serious co-morbidities (for example, chronic obstructive pulmonary  
10 disease).
- 11 1.1.6 Do not prescribe antimicrobials for ARIs based on a remote consultation  
12 alone. If antimicrobials may be needed, refer the person for a face-to-face  
13 assessment.

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 vs bacterial infection](#) and [evidence summary D: acute respiratory infection](#).

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

2 These recommendations cover people with symptoms and signs of an ARI who  
3 present in-person at NHS services, including GP practices and walk-in centres.

4 1.1.7 Do not offer microbiological tests or influenza tests to people with  
5 suspected ARI to determine whether to prescribe antibiotics.

6 1.1.8 For people with symptoms and signs of an ARI, use clinical assessment to  
7 make a diagnosis and decide whether to prescribe antibiotics. Use the  
8 presence of 1 or more of the symptoms and signs in box 1, or reduced  
9 breath sounds or crackles on auscultation, to assess for possible  
10 pneumonia.

11 1.1.9 Consider a C-reactive protein (CRP) test if, after the clinical assessment,  
12 it is unclear whether to prescribe antibiotics to people without suspected  
13 pneumonia:

- 14 • offer antibiotics if their CRP level is more than 100 mg/litre
- 15 • consider a delayed antibiotic prescription (a prescription for use at a  
16 later date if symptoms worsen) if the CRP level is between 20 mg/litre  
17 and 100 mg/litre
- 18 • do not routinely offer antibiotics if their CRP level is less than 20  
19 mg/litre.

20 1.1.10 For people who do not have a clinical diagnosis of pneumonia, consider  
21 their ARI symptoms in the context of their overall health and frailty when  
22 making decisions about treatment or referral for further assessment.

23 1.1.11 If a clinical diagnosis of pneumonia has been made (see box 1), carry out  
24 a risk assessment using the CRB65 score (see box 2) to support clinical  
25 judgement about managing the person's pneumonia.

**Box 2: CRB65 score for risk assessment of pneumonia in primary care**

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 as follows:

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

- 1  
2 1.1.12 Use clinical judgement together with the CRB65 score to inform decisions  
3 about whether people with a clinical diagnosis of pneumonia need hospital  
4 assessment as follows:
- 5 • consider hospital assessment for people with a CRB65 score of 3 or  
6 more
  - 7 • discuss the options with people with a score of 1 or 2 and make a  
8 shared decision about the best care pathways for them, for example  
9 supported home-based care such as a virtual ward
  - 10 • consider home-based care for people with a CRB65 score of 0.
- 11 1.1.13 When deciding on treatment, take into account the patient's social  
12 circumstances and preferences and see [NICE's guideline on antimicrobial  
13 prescribing for community-acquired pneumonia](#).

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 vs bacterial infection](#) and [evidence summary D: acute respiratory infection](#).

1

## 2 **Terms used in this guideline**

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

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

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

## 9 **Recommendations for research**

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

### 11 **Key recommendations for research**

#### 12 **1 Early warning scores in different settings**

13 How accurate are early warning scores such as [NEWS2](#) and CRB65, when applied  
14 in face-to-face and remote consultations in:

- 15 • primary care and other non-hospital, low-prevalence settings?
- 16 • [ARI hubs](#)?

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

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

## 1 **2 Microbiological point of care tests**

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

For a short explanation of why the committee made this recommendation for research, 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 summary D: acute respiratory infection](#).

## 6 **3 Costing antimicrobial stewardship**

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

For a short explanation of why the committee made this recommendation for research, 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 summary D: acute respiratory infection](#).



## 1 **Rationale and impact**

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

## 4 **Remote contact with NHS services at first presentation**

5 [Recommendations 1.1.3 to 1.1.6](#)

## 6 **Why the committee made the recommendations**

7 Since the COVID-19 pandemic, remote consultations have become more common.  
8 The committee agreed that people contacting NHS services remotely might not have  
9 equal access to digital technology and the skills needed to use it. They might also  
10 have difficulties communicating if they are suffering symptoms of an ARI, such as  
11 wheezing or breathlessness.

12 Remote consultations are provided by a range of healthcare practitioners with  
13 different levels of clinical acumen and judgment. For this reason, the committee  
14 agreed it was important to flag the need to check that remote assessment is  
15 appropriate and to assess for pneumonia.

16 The evidence identified a range of symptoms and signs that can help to identify  
17 bacterial pneumonia. If a person with a suspected ARI has 1 or more of these  
18 symptoms, they are at least 75% likely to have bacterial pneumonia. Although some  
19 of these symptoms can be assessed remotely, many require the person to have  
20 access to the correct equipment. The committee acknowledged that pneumonia can  
21 be caused by a viral infection, and it is difficult to distinguish it from a bacterial  
22 infection. Therefore, they agreed that the symptoms and signs in box 1 could be  
23 used to identify viral pneumonia too.

24 The committee agreed that people with symptoms of pneumonia need to be seen  
25 face-to-face so a more thorough assessment can be carried out. This is also the  
26 case for people with other ARIs who may need antibiotics. They agreed that the  
27 face-to-face assessment could be in a range of different settings. For many people, a  
28 referral to a GP or an [ARI hub](#) would be the right solution, but if a person was very ill

1 or deteriorating quickly then it might be important to direct them to an emergency  
2 department or arrange an emergency ambulance.

3 The committee were keen to explore whether any of the established early warning  
4 scores such as [NEWS2](#) or CRB65 could help with this decision making and they  
5 made a [research recommendation on using early warning scores in different](#)  
6 [settings](#).

### 7 **How the recommendations might affect practice**

8 Many people already contact the NHS remotely, through services such as NHS 111  
9 or telephone appointments with their GP. These recommendations will help  
10 healthcare practitioners recognise bacterial pneumonia and should improve  
11 antimicrobial stewardship by reducing the number of antibiotics prescribed without a  
12 face-to-face assessment.

13 [Return to recommendations](#)

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

15 [Recommendations 1.1.7 to 1.1.13](#)

### 16 **Why the committee made the recommendations**

17 The evidence showed that point of care microbiological tests for people with  
18 suspected ARIs were not accurate enough to determine whether an infection was  
19 bacterial or viral. The committee noted that the evidence showed that some tests for  
20 influenza virus and respiratory syncytial virus (RSV) were accurate for ruling out  
21 these viruses but were less good at detecting them. The economic evidence for  
22 single pathogen tests was sparse and demonstrated no cost-effectiveness. The  
23 committee wanted clearer data about microbiological test accuracy to be able to give  
24 more specific advice in future, so they made a [research recommendation on](#)  
25 [microbiological point of care tests](#).

26 The committee discussed the use of CRP tests to guide antibiotic prescribing. The  
27 evidence showed that using a high CRP test result of 100mg/l or more as a threshold  
28 for giving antibiotics means that most people who test positive will have an infection.  
29 However, it also means that some infections might be missed. As the threshold gets

1 lower, the chances of infections being missed goes down, but the number of people  
2 who test positive, but do not have an infection, goes up. The committee agreed that  
3 a higher threshold was better in terms of antimicrobial stewardship. They discussed  
4 the limitations of CRP testing because of the time lag for onset of symptoms with  
5 infections (which corresponds to presence of CRPs), so a sample taken early in the  
6 course of infection could be falsely reassuring. The committee were concerned that  
7 antimicrobial resistance could not easily be factored into economic evaluations of  
8 ARI interventions and they made a [research recommendation on costing](#)  
9 [antimicrobial stewardship](#) to address this.

10 The evidence showed that CRB65 might be a useful tool to estimate mortality risk  
11 and can serve as a useful check on clinical judgement when assessing the severity  
12 of pneumonia after a clinical diagnosis has been made. The committee noted that  
13 further research is needed to validate CRB-65 in primary care and community  
14 settings. There was evidence for using the NEWS tool for predicting severe illness,  
15 but not in primary care. The committee agreed that [NEWS2](#) (the newer version of  
16 NEWS) needs to be evaluated in a range of settings such as [ARI hubs](#) and settings  
17 with a lower prevalence of ARI. Therefore, they made a [research recommendation](#)  
18 [on using early warning scores in different settings](#) to explore this.

19 The committee considered people who had an ARI but did not have pneumonia, for  
20 example people with influenza. They agreed that even though these infections are  
21 normally self-limiting, people who had co-morbidities, were frail, or were  
22 immunosuppressed could be at high risk and the thresholds for antimicrobial  
23 prescription or referral might need to be lowered.

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

## 27 **How the recommendations might affect practice**

28 The evidence suggests that the recommendations may reduce rates of antibiotic  
29 prescribing for people with ARI, and as well as reducing expenditure on unnecessary  
30 and ineffective treatments, this is good antimicrobial stewardship. The  
31 recommendations about microbiological testing and the using CRB65 in primary care

1 formed part of [NICE's guideline on pneumonia](#) and should not have any additional  
2 resource impact.

3 [Return to recommendations](#)

## 4 **Context**

5 Before the COVID-19 pandemic, people with suspected ARIs either presented to  
6 NHS 111 or primary care for assessment and management, with more severe cases  
7 referred for hospital assessment, or they presented directly to A&E or to the  
8 ambulance service if their symptoms were more serious. Since the pandemic, the  
9 levels of ARI (particularly pneumonia caused by COVID-19 infection) have  
10 increased.

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

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

## 17 **Finding more information and committee details**

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

20 For details of the guideline committee see the [committee member list](#).

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