

# NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

## Guideline scope

### Pneumonia: diagnosis and management (update)

**June 2024:** This scope has been amended. This is to reflect the final review questions agreed by the committee.

This guideline will bring together and update the NICE guidelines on:

- [pneumonia in adults: diagnosis and management \(CG191\)](#)
- [pneumonia \(community-acquired\): antimicrobial prescribing \(NG138\)](#)
- [pneumonia \(hospital-acquired\): antimicrobial prescribing \(NG139\)](#).

The new guideline will cover babies, children, young people, and adults to reflect the content of NG138 and NG139.

The guideline will be developed using the methods and processes outlined in [developing NICE guidelines: the manual](#).

## 1 Why the update is needed

Before the COVID-19 pandemic, people with community-acquired pneumonia either presented to primary care for assessment and management, with more severe cases referred for hospital assessment, or they presented directly to A&E. During the pandemic, the levels of diagnosed viral pneumonia (specifically pneumonia caused by COVID-19 infection) increased and there were associated changes in how pneumonia was diagnosed and managed.

As COVID-19 changes to become endemic rather than a pandemic it is appropriate to assess the effects on diagnosing and managing non-COVID-19 pneumonia and to update our guidance, while future proofing it where possible. To simplify access, all our recommendations on non-COVID-19 pneumonia will be in 1 guideline.

These issues are explored in more detail in the [2022 exceptional surveillance report](#), which forms the basis for this work. This work was carried out using the input of topic experts.

## 2 Who the guideline is for

This guideline is for:

- healthcare professionals
- people who have suspected or confirmed pneumonia, their families and carers.

It may also be relevant for:

- commissioners
- social care practitioners
- voluntary organisations and patient support groups.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the [Welsh Government](#), [Scottish Government](#) and [Northern Ireland Executive](#).

### Equality considerations

NICE has carried out an equality impact assessment during scoping. The assessment:

- lists equality issues identified, and how they have been addressed
- explains why any groups are excluded from the scope.

The guideline will look at inequalities relating to age, disability, pregnancy, race, religion or belief, sex, socioeconomic status and deprivation, and those that affect people who are homeless, newly arrived migrants and people with low levels of literacy/health literacy.

## **3 What the updated guideline will cover**

### **3.1 Who is the focus?**

#### **Groups that will be covered**

- Babies over 28 days (corrected gestational age), children, young people and adults with suspected or diagnosed community-acquired or hospital acquired pneumonia.

No specific subgroups of people have been identified as needing specific consideration.

#### **Groups that will not be covered**

- Babies up to and including 28 days (corrected gestational age).
- People with COVID-19 pneumonia.
- People who acquire pneumonia while intubated (ventilator-associated pneumonia).
- People who are severely immune-compromised (have a primary immune deficiency or secondary immune deficiency related to HIV infection, or severe drug or systemic disease-induced immunosuppression, for example, people who have taken immunosuppressant cancer therapy or undergone organ transplantation).
- People in whom pneumonia is an expected terminal event.
- Non-pneumonic infective exacerbations of bronchiectasis.
- Non-pneumonic infective exacerbations of chronic obstructive pulmonary disease.
- Pneumonia associated with cystic fibrosis.
- Aspiration pneumonia caused by inhalation of a large volume of gastric contents.

### **3.2 Settings**

#### **Settings that will be covered**

- All settings where NHS healthcare or social care is provided or commissioned.

### **3.3 Activities, services or aspects of care**

#### **Key areas that will be covered in this update**

We will look at evidence in the areas below when developing this update. We will consider making new recommendations or updating existing recommendations.

- 1     Diagnosis
  - The accuracy of lung ultrasound for diagnosing community-acquired and hospital-acquired pneumonia
- 2     Outcome prediction tools for people with community-acquired pneumonia
  - Tools for use in babies, children and young people in primary care
  - Tools for use in hospital
- 3     Where to treat community-acquired pneumonia
- 4     Microbiological tests and other investigations
  - Microbiological tests to inform treatment decisions in hospital
  - C-reactive protein (CRP), procalcitonin and other biomarkers to help determine when to stop or change treatment and when to discharge from hospital
- 5     Antibiotic treatment for community-acquired pneumonia
  - Duration of treatment in babies, children and young people.
- 6     Adjunctive therapy
  - Corticosteroid treatment
  - Non-invasive respiratory support
- 7     Information for patients, their families and carers
- 8     Follow up
  - Use of chest X-rays 6 weeks post hospital discharge

We will also include recommendations on the principles of antibiotic treatment and reassessment based on the existing recommendations from NG138 and NG139.

Note that guideline recommendations for medicines will normally fall within licensed indications; exceptionally, and only if clearly supported by evidence, use outside a licensed indication may be recommended. The guideline will assume that prescribers will use a medicine's summary of product characteristics to inform decisions made with individual patients.

## Proposed content for the guideline

The table below outlines all the areas that will be included in the updating work. It sets out what NICE plans to do and why.

## Proposed content for the guideline

Area of care	What NICE plans to do and why
1.1 Diagnosis	
Diagnosis of pneumonia	Review evidence about ultrasound: new area in the guideline.
1.2 Principles of antibiotic treatment and reassessment	New section using recommendations from NG138 and NG139 without an evidence review.
1.3 Assessing and managing community-acquired pneumonia	
Outcome prediction tools in primary care	Review evidence: retain recommendations from existing guideline (CG191) for adults, but review evidence for babies, children and young people. This is because no substantive new evidence for adults was identified, but under 18s were not covered by CG191.
Outcome prediction tools in hospital	Review evidence on tools. This is because new evidence on Sequential Organ Failure Assessment (SOFA) was identified that may change the recommendations for adults and there are currently no recommended tools for under 18s.
Where to treat	Review evidence on care outside of the acute hospital setting because practice has changed since CG191 was developed and because of the COVID-19 pandemic.
Microbiological tests and other investigations	Review evidence on microbiological tests: the need to identify the causal agents of pneumonia and manage treatment appropriately was identified in the <a href="#">2022 exceptional surveillance report</a> . Review evidence on procalcitonin and other biomarkers because new evidence has been identified that may lead to recommendations. Review evidence on C-reactive protein (CRP) because management based on CRP has changed because of the COVID-19 pandemic.
Antibiotic treatment	Review evidence: review evidence for duration of antibiotic treatment for children but retain recommendations from existing

Area of care	What NICE plans to do and why
	guideline (NG138) for other age groups. This is because no substantive new evidence in this area was identified for age groups other than children.
Corticosteroid treatment	Review evidence: new evidence on corticosteroids identified that may change the recommendations. These are currently limited to glucocorticoids.
Non-invasive respiratory support	Review evidence: new evidence on non-invasive respiratory support identified. No recommendations were made last time except for a research recommendation on continuous positive airways pressure.
Safe discharge from hospital	No review of evidence: retain existing recommendations. This is because no substantive new evidence in this area was identified.
Information for patients, their families and carers	Review evidence: this section will be updated because the necessary information is likely to have changed because of the COVID-19 pandemic.
Follow up	New section: review evidence on usefulness of a 6-week post hospital discharge chest X-ray. This is because of variations in practice and uncertainty of benefit.
1.4 Hospital-acquired pneumonia	
Outcome prediction tools in hospital	No review of evidence: no recommendations made in CG191 due to a lack of evidence and no substantive new evidence in this area was identified.
Microbiological tests and other investigations	Review evidence: no new evidence identified but review as additional part of work looking at microbiological tests, CRP, procalcitonin and biomarkers for community-acquired pneumonia. Same searches likely to identify evidence for both community- and hospital-acquired pneumonia.  No evidence identified last time, and no recommendations made.
Antibiotic treatment	No review of evidence: retain recommendations from existing guideline NG139. This is because no substantive new evidence in this area was identified.
Corticosteroid treatment	Review evidence: no new evidence identified but review as additional part of work looking at corticosteroid treatment for

Area of care	What NICE plans to do and why
	community-acquired pneumonia. Same searches likely to identify evidence for both community- and hospital-acquired pneumonia. No evidence identified last time, and no recommendations made.
Non-invasive respiratory support	Review evidence: no new evidence identified but review as additional part of work looking at non-invasive respiratory support for community-acquired pneumonia. Same searches likely to identify evidence for both community- and hospital-acquired pneumonia. No evidence identified last time, and no recommendations made.
Safe discharge from hospital	No review of evidence. This is because no substantive new evidence in this area was identified. No evidence was identified last time, and no recommendations made.
Information for people with pneumonia, their families and carers	This section will be updated because the necessary information is likely to have changed because of the COVID-19 pandemic. No evidence identified last time, and no recommendations made.
Follow up	New section: review evidence on usefulness of a 6-week post hospital discharge chest X-ray. This is because of variations in practice and uncertainty of benefit.

### Areas that will not be covered by the guideline

- 1 Prevention strategies, including vaccination or lifestyle advice.
- 2 Managing specific identified pathogens (including tuberculosis and viruses).
- 3 Management strategies:
  - complementary and alternative treatments
  - statins
  - granulocyte-colony stimulating factor (GCSF)
  - nebulised saline
  - fluids
  - nutrition

## FINAL

- physiotherapy
- palliative care

### 4 Managing complications.

## Related NICE guidance

### Published

We will add links between the new guideline and the following guidelines as necessary. We may remove or move content from these guidelines.

- [Vaccine uptake in the general population](#) (2022) NG218
- [COVID-19 rapid guideline: managing COVID-19](#) (2021, updated 2022) NG191
- [Neonatal infection: antibiotics for prevention and treatment](#) (2021) NG195
- [Fever in under 5s: assessment and initial management](#) (2019, updated 2021) NG143
- [Cough \(acute\): antimicrobial prescribing](#) (2019) NG120
- [Chronic obstructive pulmonary disease in over 16s: diagnosis and management](#) (2019) NG115
- [Chronic obstructive pulmonary disease \(acute exacerbation\): antimicrobial prescribing](#) (2018) NG114
- [Bronchiectasis \(non-cystic fibrosis\), acute exacerbation: antimicrobial prescribing](#) (2018) NG117
- [Intermediate care including reablement](#) (2017) NG74
- [Sepsis: recognition, diagnosis and early management](#) (2017) NG51
- [Antimicrobial stewardship: systems and processes for effective antimicrobial medicine use](#) (2015) NG15
- [Neutropenic sepsis: prevention and management in people with cancer](#) (2012) CG151

## NICE guidance about the experience of people using NHS services

NICE has produced the following guidance on the experience of people using the NHS. This guideline will not include additional recommendations on these topics unless there are specific issues related to pneumonia:

- [Shared decision making](#) (2021) NG197



- [Medicines optimisation](#) (2015) NG5
- [Patient experience in adult NHS services](#) (2012) CG138
- [Medicines adherence](#) (2009) CG76

### **3.4 Economic aspects**

We will take economic aspects into account when making recommendations. We will develop an economic plan that states for each review question (or key area in the scope) whether economic considerations are relevant, and if so whether this is an area that should be prioritised for economic modelling and analysis. We will review the economic evidence and carry out economic analyses, using an NHS and personal social services (PSS) perspective, as appropriate.

### **3.5 Key issues and draft questions**

While writing the scope for this updated guideline, we have identified the following key issues and draft questions related to them:

#### **1 Diagnosis**

1.1 In people with suspected community-acquired pneumonia who present to primary care or an emergency department, which symptoms and signs are useful to identify people who would benefit from referral to hospital?

1.2 What is the diagnostic accuracy of lung ultrasound compared to chest X-ray for diagnosing community and hospital acquired pneumonia?

#### **2 Outcome prediction tools for people with community-acquired pneumonia and thresholds for referral**

2.1 In babies, children, and young people presenting with suspected community-acquired pneumonia in primary care, what is the most accurate and cost-effective outcome prediction tool to identify under 18s whose outcome will be improved by referral to hospital?

2.2 In people with suspected community-acquired pneumonia (presenting to an emergency care setting) what is the most accurate and cost-effective outcome prediction tool with or without the use of biomarkers or

oxygen saturation monitoring, to stratify patients at first presentation according to who would be suitable for a particular care pathway?

3 Where to treat community-acquired pneumonia

3.1 What is the clinical and cost effectiveness of care outside of the acute hospital setting (for example using intermediate care, hospital at home, virtual wards) for people with intermediate risk community-acquired pneumonia?

4 Microbiological tests and other investigations

4.1 In people in hospital with a diagnosis of community- or hospital-acquired pneumonia, what is the clinical and cost effectiveness of monitoring C-reactive protein or procalcitonin and other biomarkers (or combinations of biomarkers) in addition to clinical observation in helping to determine when to deescalate or change treatment and when to change the place of care (for example, from ICU to non-ICU care or discharge from hospital)?

4.2 What are the most effective and cost-effective microbiological tests or combination of tests at presentation in secondary care to inform treatment decisions in people with suspected community-acquired pneumonia or suspected hospital-acquired pneumonia?

5 Antibiotic treatment for community-acquired pneumonia

5.1 Are shorter durations of antibiotic treatment effective and cost-effective at treating babies, children and young people with community-acquired pneumonia compared to longer treatment courses?

6 Adjunctive therapy

6.1 In people with community- or hospital-acquired pneumonia what is the clinical effectiveness and cost effectiveness of corticosteroid treatment in addition to antibiotic treatment compared with antibiotic treatment alone?

6.2 In people in hospital with community- or hospital-acquired pneumonia, what is the clinical and cost effectiveness of 1 type of non-invasive respiratory support (for example, non-invasive ventilation or continuous

positive airway pressure) compared with another type of non-invasive respiratory support or usual care?

7 Information for patients, their families/carers

7.1 What advice should be given to adults or parents/carers of babies, children, young people about what symptoms and duration of symptoms can be expected following treatment for community- or hospital-acquired pneumonia, and when should people be advised to consult or re-consult a GP?

8 Follow up

8.1 Is a routine chest X-ray at 6 weeks post discharge an effective and cost-effective intervention to identify underlying disease in people who have been treated for community- or hospital-acquired pneumonia in hospital?

The key issues and draft questions will be used to develop more detailed review questions, which guide the systematic review of the literature.

### 3.6 Main outcomes

The main outcomes that may be considered when searching for and assessing the evidence are:

- mortality
- invasive mechanical ventilation
- non-invasive ventilation
- hospitalisation and length of stay
- critical care admission
- readmission rates
- re-consultation in primary care
- time to clinical stability
- duration of antimicrobial prescribing and antimicrobial resistance
- pneumonia specific adverse events and antibiotic treatment side effects
- patient reported outcome measures- for example, breathlessness (dyspnoea), chest pains, coughing, fatigue

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- resolution of symptoms
- cost-effectiveness
- quality of life.

## 4 NICE quality standards

**NICE quality standards that may need to be revised or updated when this guideline is published**

- Pneumonia in adults (2016) NICE quality standard 110

### Further information

This is the final scope, which takes into account comments from registered stakeholders during consultation.

The guideline is expected to be published in TBC.

You can follow progress of the [guideline](#).

Our website has information about how [NICE guidelines](#) are developed.

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