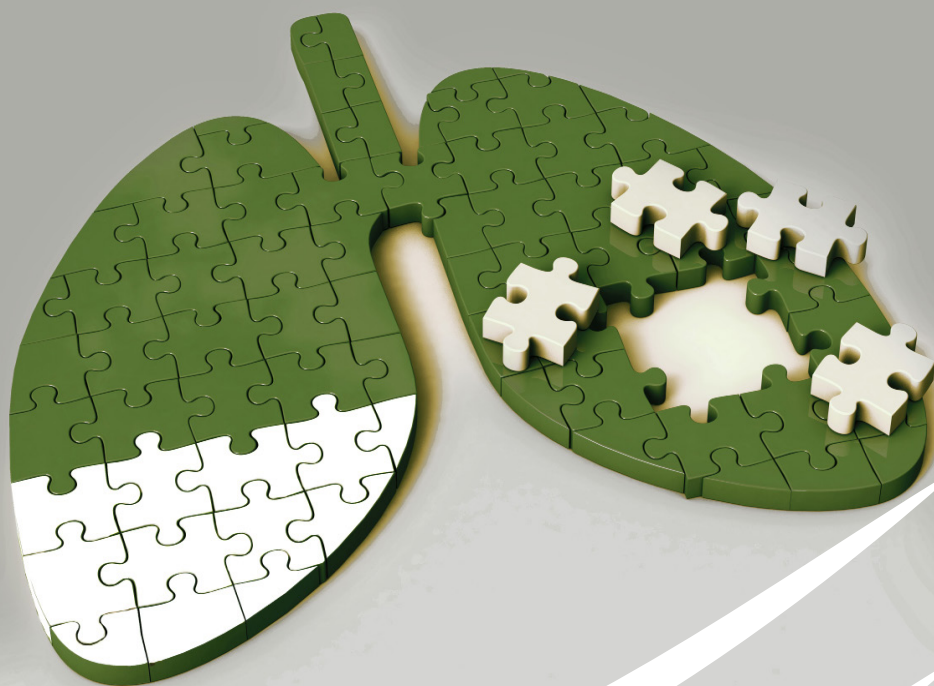


Consolidation Required

A review of the care provided to adults presenting to hospital with a diagnosis of community-acquired pneumonia

SUMMARY



CONSOLIDATION REQUIRED

A review of the care provided to adults presenting to hospital with a diagnosis of community-acquired pneumonia.

A report published by the National Confidential Enquiry into Patient Outcome and Death (2023)

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Topic Proposed by the **British Thoracic Society** and **Intensive Care Society**

Cohort: 1st October 2021 to 31st December 2021 inclusive

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EXECUTIVE SUMMARY

Community-acquired pneumonia (CAP) is one of the most common infectious diseases seen in clinical practice. It results in many hospital admissions and has a high mortality, primarily as the patient group is often frail and older with multimorbidity. The diagnosis of CAP is not always apparent at the time of first clinical assessment, and in many hospitals, there is no specialist team that takes overall responsibility for the care of patients with CAP. Clinical teams need to be more accurate in making the diagnosis of CAP, assessing its severity and ensuring appropriate antibiotic therapy. Local leadership is key in developing an infrastructure to ensure the care of patients with pneumonia is organised appropriately and a programme of ongoing monitoring and improvement is introduced.

IN THIS STUDY

The quality of care provided to patients aged 18 years and over, who had a diagnosis of CAP during the sampling period of 1st October 2021 to 31st December 2021, was assessed by analysing data from 767 clinician questionnaires, 149 organisational questionnaires and the output from the peer review of 401 sets of case notes.

1. ACCURATE DIAGNOSIS (INVESTIGATIONS)

Consider CAP as a possible diagnosis when patients present with new onset confusion without a clear cause or typical symptoms.



Confusion was common in the patients included in this study, being documented in 136/767 (17.7%) patients.

Patients most often presented with: cough (526/767; 68.6%), dyspnoea (432/767; 56.3%), and fever (235/767; 30.6%).

88/767 (11.5%) patients had no typical features of CAP at arrival.

2. CLINICAL DECISION-MAKING

Severity scores aid clinical decision-making, treatment options and escalation planning.



A CURB65 score was documented for 204/767 (26.6%) patients and a NEWS2 score was documented for 602/767 (78.5%) patients as part of the first hospital review.

47/129 (36.4%) patients with a CURB65 score of 0 received same day emergency care while 117/119 (98.3%) patients with a CURB65 score of ≥ 3 were treated as inpatients.

3. ANTIBIOTIC MANAGEMENT

Antibiotics should be started within 4 hours and reviewed within 48-72 hours, adjusting as needed for the severity of CAP.



There were 100/687 (14.6%) patients where the clinician considered that antibiotic guidance in their own hospital had not been followed.

Antibiotics were started after more than 4 hours in 110/400 (27.5%) and there was room for improvement in the use of antibiotics in 123/354 (34.7%) of the cases reviewed.

4. FOLLOW-UP ARRANGEMENTS

Clear information about pneumonia should be given, and follow-up x-rays, should be arranged at discharge.



Written information about CAP was provided to 113/338 (33.4%) patients, although not documented for a further 203 patients.

A chest X-ray was requested in 261/505 (51.7%) patients at discharge, of which 49/261 (18.8%) were requested but not undertaken. Arrangements were inconsistent for those aged over 50 years and current or ex-smokers for whom chest X-rays are recommended.

5. SERVICE ORGANISATION

Many specialties are involved in caring for people with CAP. Strong clinical leadership is needed.



56/149 (37.6%) hospitals had a lead clinician for pneumonia.

96/130 (73.8%) hospitals had at least four whole time equivalent respiratory specialist nurses.

81/110 (73.6%) hospitals self-identified areas where improvement was needed in their pneumonia service.

RECOMMENDATIONS

These recommendations have been formed by a consensus exercise involving all those listed in the acknowledgements. The recommendations have been independently edited by medical editors experienced in developing recommendations for healthcare audiences to act on.

The recommendations highlight areas that are suitable for regular local clinical audit and quality improvement initiatives by those providing care to this group of patients. The results of such work should be presented at quality or governance meetings and action plans to improve care should be shared with executive boards. Quality Improvement tools provided with this report are provided to support you in doing this.

The recommendations in this report support those previously by other organisations, so for added value should be read alongside:

NICE: [Clinical Guideline 191 - Pneumonia in adults: diagnosis and management](#)

NICE: [Quality standard 110 - Pneumonia in adults](#)

BTS: [Guidelines for the management of community acquired pneumonia](#)

GIRFT: [Respiratory report](#)

	<p>Executive boards are ultimately responsible for supporting the implementation of these recommendations. Suggested target audiences to action recommendations are listed in italics under each recommendation.</p>
1	<p>Consider community-acquired pneumonia as a possible diagnosis when patients present with new onset confusion without a clear cause, even in the absence of typical symptoms, such as a cough, fever, and breathlessness. This is particularly important for older patients and those who are frail.</p> <p><i>Primary target audience: All healthcare professionals who review patients with pneumonia</i></p> <p><i>Supported by: Clinical directors in emergency medicine, respiratory medicine, medicine for the care of older people, general medicine, and nursing leads</i></p>
2	<p>Undertake a chest X-ray in patients with suspected community-acquired pneumonia:</p> <ul style="list-style-type: none"> ▪ Within four-hours of arrival at hospital* ▪ Provide a formal report within 12 hours of the X-ray.** <p><i>*This supports NICE QS110 Quality Statement 3</i></p> <p><i>** This supports Diagnostic Imaging Reporting Turnaround Times</i></p> <p><i>Primary target audience: All healthcare professionals who review patients with pneumonia, and radiologists</i></p> <p><i>Supported by: Clinical directors in radiology, and emergency medicine</i></p>
3	<p>Use clinical support tools such as CURB65* and NEWS2, in combination with clinical judgement to determine:</p> <ul style="list-style-type: none"> ▪ The most appropriate pathway of care for patients with community-acquired pneumonia – ambulatory or inpatient

	<ul style="list-style-type: none"> ▪ Which investigations are needed ▪ Antibiotics to use as initial treatment ▪ Treatment escalation decisions <p><i>*This supports NICE QS 110 Quality Statement 4</i></p> <p>Primary target audience: All healthcare professionals who review patients with pneumonia</p> <p>Supported by: Clinical directors in emergency medicine, respiratory medicine, medicine for the care of older people, general medicine, and nursing leads</p>
4	<p>Use the results of essential investigations (e.g. chest X-ray or blood results) to review the provisional diagnosis and severity of community-acquired pneumonia for patients admitted to hospital who have started treatment to change/adjust antibiotics as necessary.</p> <p><i>N.B. A tool such as Start Smart then Focus for antimicrobial stewardship may help</i></p> <p>Primary target audience: All healthcare professionals who review patients with pneumonia</p> <p>Supported by: Clinical directors in emergency medicine, respiratory medicine, medicine for the care of older people, general medicine, and nursing leads</p>
5	<p>Arrange microbiological investigations according to the level of community-acquired pneumonia severity.</p> <p><i>This support NICE CG191 and British Thoracic Society guidelines for the management of community acquired pneumonia (2009)</i></p> <p>Primary target audience: All healthcare professionals who provide care to patients with pneumonia</p> <p>Supported by: Clinical directors in emergency medicine, respiratory medicine, medicine for the care of older people, general medicine, microbiology, and nursing leads</p>
6	<p>Prescribe antibiotics for pneumonia according to the level of clinical severity, using the narrowest spectrum of activity, and follow your hospital antibiotic guidelines. Review the antibiotic to ensure it is the most appropriate and is the best mode of delivery.</p> <p><i>N.B. A tool such as Start Smart then Focus for antimicrobial stewardship may help</i></p> <p>Primary target audience: All healthcare professionals who review patients with pneumonia</p> <p>Supported by: Clinical directors in emergency medicine, respiratory medicine, medicine for the care of older people, general medicine, pharmacy, and nursing leads</p>
7	<p>Ensure a treatment escalation plan is in place following diagnosis of community-acquired pneumonia. This should be agreed in discussion with the patient and their family, considering a combination of factors such as age, frailty, and comorbidities.</p> <p>Primary target audience: All healthcare professionals who review patients with pneumonia</p> <p>Supported by: Clinical directors in respiratory medicine, medicine for the care of older people, general medicine, and nursing leads</p>
8	<p>Record smoking status in patients admitted with community-acquired pneumonia. Offer brief advice, nicotine replacement therapy, and referral to a tobacco dependency specialist to support the group of patients who smoke, while they are in hospital and, after discharge.*</p> <p><i>*This supports NICE Guideline 209 1.14.13</i></p> <p>Primary target audience: All healthcare professionals who review patients with pneumonia</p> <p>Supported by: Clinical directors in respiratory medicine, medicine for the care of older people, general medicine, and nursing leads</p>

9	<p>Use admission to hospital with community-acquired pneumonia as an opportunity to address a patient's general health and wellbeing.*</p> <p><i>*This supports NICE Guideline 16 and Making Every Contact Count</i></p> <p>Primary target audience: All healthcare professionals who review patients with pneumonia</p> <p>Supported by: Clinical directors in respiratory medicine, medicine for the care of older people, general medicine, and nursing leads</p>
10	<p>At discharge from hospital after an episode of community-acquired pneumonia:</p> <ul style="list-style-type: none"> ▪ Provide patients with written information about pneumonia ▪ Provide patients with a clear plan for clinical follow-up. ▪ Arrange a chest X-ray at six-weeks for patients who smoke, those over 50 years of age or where symptoms persist.* If the chest X-ray is not undertaken document the reason why. <p><i>*This supports the British Thoracic Society guidelines for the management of community acquired pneumonia (2009)</i></p> <p>Primary target audience: All healthcare professionals who treat patients with pneumonia</p> <p>Supported by: Clinical directors in respiratory medicine, radiology, medicine for the care of older people, general medicine, and nursing leads</p>
11	<p>Review the infrastructure for, and leadership of, hospital pneumonia services. Aim for one specialist pneumonia nurse per 400 admissions and a clinical lead with responsibility for the pneumonia service.*</p> <p><i>*This supports the GIRFT (Getting it Right First Time) respiratory report (published March 2021)</i></p> <p>Primary target audience: Chief medical and nursing officers, clinical directors in respiratory medicine, respiratory nursing and, radiology</p>
12	<p>Differentiate community-acquired pneumonia from hospital-acquired pneumonia by including the ICD-10 code for nosocomial infections (Y95) in addition to the pneumonia code for hospital-acquired pneumonia.</p> <p>Primary target audience: Clinical coders in hospitals</p>

INTRODUCTION

Community-acquired pneumonia (CAP) is very common, affecting between 0.5% and 1% of adults in the UK each year.^[3] CAP is diagnosed in 5 to 12% of all adult patients seeing their general practitioner for lower respiratory tract infection symptoms, and around 42% of these patients are admitted to hospital. CAP accounts for more than 100,000 admissions per year, a figure that was seen to be rising even before the COVID-19 pandemic.^[3] The number of admissions due to CAP, and average length of stay (5.4 to 10.9 days) have been reported to vary across regions, even when corrected for catchment population,^[4] highlighting the absence of a standardised approach to the care of patients with CAP.

CAP is more common in older people, who often have other medical conditions. For younger patients under 65 years of age, both death and readmission are also known to be associated with greater social deprivation.^[4] In 2019, pneumonia and other lower respiratory infections were the deadliest group of communicable diseases ranked as the fourth leading cause of death by the World Health Organization,^[5] with 30,000 deaths each year in the UK.^[4] British Thoracic Society (BTS) audit data from 2018/19 have shown an overall in-hospital mortality of 10.4%.^[6] The only European countries with higher CAP mortality than the UK are Slovakia and Romania.^[3]

Readmission to hospital after an episode of CAP is common and is associated with a more than two-fold increased risk of mortality compared with readmission for other causes.^[7] The Getting It Right First Time (GIRFT) respiratory medicine report published in 2021 showed that readmissions were not related to a short initial length of stay and 38% were due to pneumonia while 21% were due to other respiratory disorders.^[1] BTS audit data have also shown that readmission rates are rising,^[6] further adding to the pressure on the healthcare system. The GIRFT report noted that *'there was surprisingly little infrastructure to support pneumonia care'* in place in hospitals compared with the infrastructure in place for other respiratory conditions that result in fewer hospital admissions.^[1]

There are established guidelines for the care of people with CAP, from admission through to discharge and follow-up.^[1,6,8-11] The BTS also have a template care bundle that describes four high-impact actions to ensure the best clinical outcome for patients admitted with CAP, comprising timely prescribing and administration of oxygen followed by timely antibiotics administered after assessment with a chest X-ray and CURB65 risk score.^[11,12] At admission, low-risk patients with CAP who may be suitable for ambulatory care should be identified. Use of a risk score can aid this and adds to the accuracy of clinical decision-making, the strategy for investigation and, for initial antibiotic treatment.^[6,8] A treatment escalation plan and monitoring for signs of deterioration in hospital are also important.^[13] Signs of deterioration influence both the location where care is delivered and the continuing antibiotic strategy. On discharge, clearly defined arrangements for follow-up need to be in place.

This study was proposed in 2019 by the BTS and the Intensive Care Society (ICS) to explore the perceived absence of a standardised approach to care. The beginning of this project coincided with the onset of the COVID-19 pandemic. Identification of patients to be included in the study was therefore deliberately delayed avoiding the peak of COVID-19 admissions.

WHAT PATIENTS SAID

WHAT SHOULD HAPPEN

"I felt extremely well supported, the communication, care and knowledge was just outstanding."

"The medical team took the time to understand my personal situation which included two rare and difficult to manage auto immune conditions."

"[I am] Supported by a physiotherapist that visits me at home and contacts me weekly to check in and see how my exercise plan is going."

"Since discharge, I have had a weekly call with the Critical Care Recovery Team which has been invaluable."

"[I] Feel that anytime I need support the GP surgery gives me very quick and priority access to my GP."

WHAT SHOULD NOT HAPPEN

"I do not think they adequately explained all the procedures that I had in hospital, or how I came to have pneumonia."

"Nothing about community-acquired pneumonia was explained to me at hospital."

"No plan on how to cope and what to do in terms of accessing support the first few weeks after discharge."

"Lack of information. No one explained why I had to have repeat chest X-ray."

"Discharged home directly from ICU which was a real shock to the system."

METHOD AND DATA RETURNS

Study Advisory Group

A multidisciplinary group of clinicians was convened to define the objectives of the study and advise on the key questions. The Study Advisory Group (SAG) comprised healthcare professionals in respiratory medicine, acute medicine, critical care, specialist respiratory nursing, specialist respiratory physiotherapy, pharmacy, and lay/patient representatives. This group steered the study from design to completion.

Aim

To identify avoidable and modifiable factors in the care of adults presenting to hospital with a diagnosis of community-acquired pneumonia (CAP).

Objectives

The SAG identified the following areas to address:

- The care delivered from presentation to hospital through to discharge or death
- Factors determining an ambulatory care or ward-based approach including severity
- Appropriateness of care including risk stratification, antibiotic usage/duration of usage, escalation decisions and discharge location
- Sharing of treatment escalation plans
- Available services, access to investigations, and antibiotic formularies; first and second choices according to pneumonia severity
- Use of guidelines, audit, and protocols

Study population and case ascertainment

Inclusion criteria

All patients aged 18 or over who presented to hospital between 1st October 2021 and 31st December 2021 with a primary admission diagnosis of CAP.

Exclusion criteria

Patients presenting to hospital within 10 days of being discharged from hospital where the discharge diagnosis of the previous admission was not CAP.

Sampling

A maximum of eight patients were selected from each hospital. Sampling was deliberately biased towards more severe cases of CAP, based on increased length of stay, admission to critical care and death, to ensure the inpatient pathway could be assessed. A sample of ambulatory/same day discharges were also included while minimising sampling patients with a length of stay of less than three days. Critical care admission was not specifically excluded but was not a focus of the study. Sampling for the study was delayed until after the peak of the COVID-19 pandemic.

Hospital participation

Data were included from hospitals in England, Wales, Northern Ireland, and Jersey.

Data collection: peer review

Identification of a sample population

A pre-set spreadsheet was provided to every local reporter to identify all patients meeting the study criteria during the defined time period. From this initial cohort, the sampling for inclusion in the study took place.

Questionnaires

Two questionnaires were used to collect data for this study: a clinician questionnaire for each patient and an organisational questionnaire for each participating hospital.

Clinician questionnaire

This questionnaire was sent electronically to the consultant responsible for the care of the patient at the time of their admission to hospital/emergency department episode.

Organisational questionnaire

This questionnaire was sent electronically to the local reporter to pass on to relevant people who could provide information on the services provided, guidelines and policies relevant to the care of patients presenting to hospital with CAP.

Case notes

Copies of the case notes were requested for peer review:

- GP related notes and referral
- Ambulance notes/ambulance service patient report form (PRF)/emergency department clerking proforma/records/ same day emergency care notes
- Inpatient notes from all healthcare professionals
- Radiology, haematology, biochemistry and, microbiology reports
- Datix or other incident reports
- Post mortem report if applicable
- Discharge letter/summary
- Out-patient follow-up clinic notes and letters for 6 months post discharge

Peer review of the case notes and questionnaire data

A multidisciplinary group of case reviewers comprising consultants, trainees and clinical nurse specialists from: respiratory medicine, acute medicine, emergency medicine, and general medicine were recruited to peer review the case notes and associated clinician questionnaires.

All patient identifiers were removed by the non-clinical staff at NCEPOD before the case notes or questionnaires were presented to the group. Using a semi-structured electronic questionnaire, each set of case notes was reviewed by at least one reviewer within a multidisciplinary meeting. At regular intervals discussion took place, allowing each reviewer to summarise their cases and ask for opinions from other specialties or raise aspects of the case for further discussion.

Data collection: patient online survey

An open-access, anonymous survey was circulated online to allow patients who had experienced CAP to provide their views on the care they had received. This survey was designed with the help of the SAG and a patient focus group. A survey link was sent to a wide group of stakeholders to disseminate via local patient participation groups and promote using social media.

Information governance

All data received and handled by NCEPOD comply with all relevant national requirements, including the General Data Protection Regulation 2016 (Z5442652), Section 251 of the NHS Act 2006 (PIAG 4-08(b)/2003, App No 007), PBPP (1718-0328) and the Code of Practice on Confidential Information. Each patient included was given a unique NCEPOD number. All electronic questionnaires were submitted through a dedicated online application.

Data analysis

Following cleaning of the quantitative data, descriptive data summaries were produced.

Qualitative data collected from the reviewers' opinions and free text answers in the clinician questionnaires were themed, where possible to allow additional quantitative analysis.

As the general method adopted in this study provides a snapshot of care over a set point in time, with data collected from several sources to build a picture of care across the UK, denominators in the report will change depending on the data source. This deep dive uses a qualitative method of peer review from which anonymised case studies have been created and used throughout the report to illustrate themes. The sampling method of this enquiry, unlike an audit, means that data cannot be displayed at a hospital/trust/health board/regional level.

Data analysis rules

- Small numbers have been suppressed if they risked identifying an individual.
- Any percentage under 1% has been presented in the report as <1%.
- Percentages were not calculated if the denominator was less than 100 so as not to inflate the findings.
- There is variation in the denominator for different data sources and for each individual question as it is based on the number of answers given.

The findings of the report were reviewed prior to publication by the SAG, case reviewers and the NCEPOD Steering Group which included clinical co-ordinators, trustees, and lay representatives.

Data returns

Clinical data

During the three-month study period, patient identification spreadsheet data recorded 53,667 hospital admissions (including same day emergency care) coded as pneumonia in 46,974 different patients. The average age of this population was 73.8 years. There were 35,640/46,974 (75.6%) patients aged 65 years or over and 6,727/46,974 (14.3%) patients died. Figure 1.1 show the sampling for inclusion in the study.

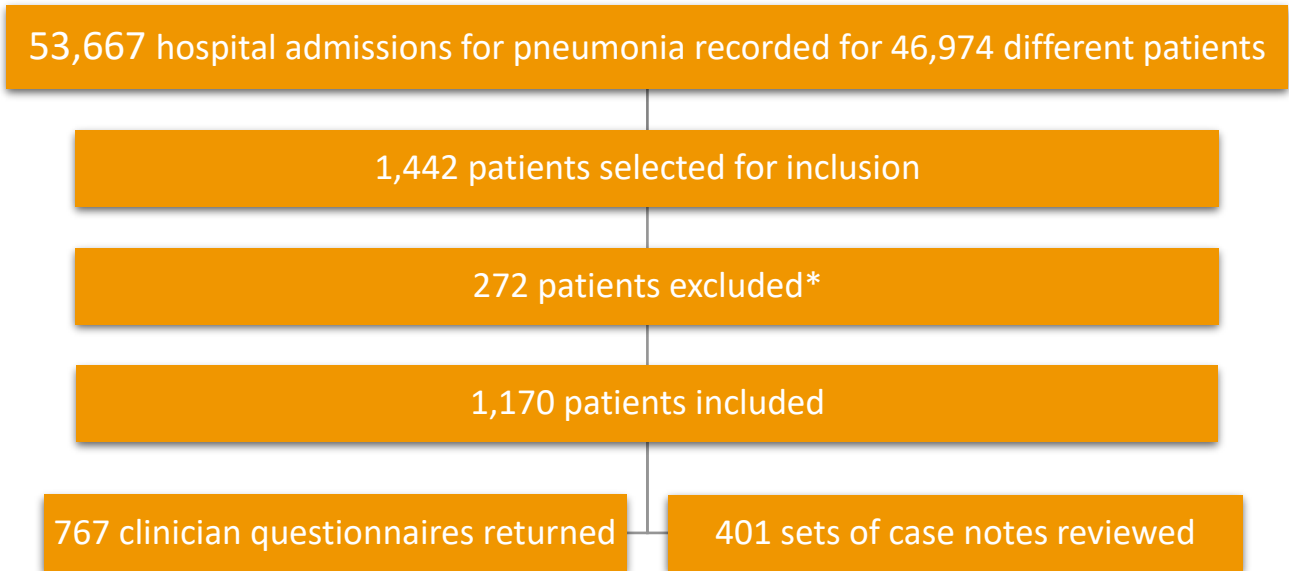


Figure 1.1 Data returns

*The most common reasons for exclusion were that the pneumonia was acquired in hospital rather than in the community or patient did not have pneumonia.


Organisational data

Data were available from the organisational questionnaire for 149 hospitals.

REFERENCES

1. [Getting It Right First Time: GIRFT. 2021](#)
2. [World Health Organization: WHO. Antibiotic resistance. 2020](#)
3. Daniel P, Bewick T, Welham S, *et al.* Adult Community Acquired Pneumonia (CAP) Audit Report. British Thoracic Society 2015; 32: 55–59
4. Lawrence H, McKeever TM, Lim WS. Impact of social deprivation on clinical outcomes of adults hospitalised with community-acquired pneumonia in England: a retrospective cohort study. *BMJ Open Respiratory Research* 2022; 9: e001318
5. [World Health Organization: WHO. 2020](#)
6. [British Thoracic Society. National Audit Report: Adult Community Acquired Pneumonia Audit 2018-2019](#)
7. [Lawrence H, McKeever TM, Lim WS. Readmission following hospital admission for community-acquired pneumonia in England. British Thoracic Society. Thorax. 2023](#)
8. [The National Institute for Health and Care Excellence. Pneumonia in adults: diagnosis and management \[CG191\]. 2022](#)
9. [The National Institute for Health and Care Excellence. Pneumonia in adults \[QS110\]. 2016](#)
10. [British Thoracic Society. Adult Community Acquired Pneumonia. 2009](#)
11. [NHS Wales. All-Wales Secondary Care Community Acquired Pneumonia Guideline. Institute of Clinical Science and Technology \(ICST\)](#)
12. [British Thoracic Society, Community Acquired Pneumonia Care Bundle](#)
13. Royal College of Physicians. [National Early Warning Score \(NEWS\) 2. Standardising the assessment of acute-illness severity in the NHS. Updated report of a working party 2017](#)

USEFUL LINKS

	<u>RESPIRATORY MEDICINE</u>
 <p>British Thoracic Society</p>	<u>NATIONAL AUDIT REPORT 2019</u>
	<u>PNEUMONIA IN ADULTS: DIAGNOSIS AND MANAGEMENT - CLINICAL GUIDELINE [CG191]</u> <u>PNEUMONIA IN ADULTS QUALITY STANDARD [QS110]</u>
 <p>DALHOUSIE UNIVERSITY</p>	<u>ROCKWOOD CLINICAL FRAILITY SCALE</u>
 <p>Royal College of Physicians</p>	<u>NEWS2</u>
<p>CURB65 score is calculated by giving 1 point for each of the following prognostic features:</p> <ul style="list-style-type: none"> • confusion (abbreviated Mental Test score 8 or less, or new disorientation in person, place or time). • raised blood urea nitrogen (over 7 mmol/litre) • raised respiratory rate (30 breaths per minute or more) • low blood pressure (diastolic 60 mmHg or less, or systolic less than 90 mmHg) • age 65 years or more. <p>Patients are stratified for risk of death as follows:</p> <ul style="list-style-type: none"> • 0 or 1: low risk (less than 3% mortality risk) • 2: intermediate risk (3-15% mortality risk) • 3 to 5: high risk (more than 15% mortality risk). <p>Source: <u>Lim et al. (2003) Defining community-acquired pneumonia severity on presentation to hospital: an international derivation and validation study. Thorax 58: 377–82.</u></p>	