NICE National Institute for Health and Care Excellence

NICE quality standard

Pneumonia in adults

Quality standard

Published: 19 January 2016

www.nice.org.uk/guidance/qs110

Contents

This standard is based on CG191 and NG138.

This standard should be read in conjunction with QS97, QS66, QS63, QS61, QS15, QS43, QS121 and QS10.

Quality statements

Statement 1 Adults have a mortality risk assessment using the CRB65 score when they are diagnosed with community-acquired pneumonia in primary care.

Statement 2 Adults with low-severity community-acquired pneumonia are prescribed a 5-day course of a single antibiotic.

Statement 3 Adults with suspected community-acquired pneumonia in hospital have a chest X-ray and receive a diagnosis within 4 hours of presentation.

Statement 4 Adults have a mortality risk assessment using the CURB65 score when they are diagnosed with community-acquired pneumonia in hospital.

Statement 5 Adults with community-acquired pneumonia who are admitted to hospital start antibiotic therapy within 4 hours of presentation.

Quality statement 1: Mortality risk assessment in primary care using CRB65 score

Quality statement

Adults have a mortality risk assessment using the CRB65 score when they are diagnosed with community-acquired pneumonia in primary care.

Rationale

Assessing mortality risk using the CRB65 score in primary care informs clinical judgement and supports decision-making about whether care can be managed in the community or if hospital assessment is needed. This ensures that treatment is based on the severity of the infection and will improve treatment outcomes.

Quality measures

Structure

Evidence of local arrangements to ensure that adults have a mortality risk assessment using the CRB65 score when they are diagnosed with community-acquired pneumonia in primary care.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from clinical protocols.

Process

Proportion of community-acquired pneumonia diagnoses of adults in primary care at which the adult has a mortality risk assessment using the CRB65 score.

Numerator – the number in the denominator at which the adult has a mortality risk assessment using the CRB65 score.

Denominator – the number of diagnoses of community-acquired pneumonia in adults in primary care.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

Outcome

Mortality due to pneumonia.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

What the quality statement means for different audiences

Service providers (primary care services) ensure that adults have a mortality risk assessment using the CRB65 score when they are diagnosed with community-acquired pneumonia in primary care.

Healthcare professionals (such as GPs and nurse practitioners) carry out a mortality risk assessment using the CRB65 score when an adult is diagnosed with community-acquired pneumonia in primary care. Details of the risk assessment should be shared if the adult is referred to hospital or outpatient care.

Commissioners (NHS England area teams and clinical commissioning groups) commission services in which adults have a mortality risk assessment using the CRB65 score when they are diagnosed with community-acquired pneumonia in primary care.

Adults diagnosed with community-acquired pneumonia by their GP have a first assessment to find out how serious the pneumonia is. This includes a 'CRB65 score', which uses the person's age, symptoms and blood pressure to help decide how serious the risks

are for that person and whether they need to go to hospital.

Source guidance

Pneumonia in adults: diagnosis and management. NICE guideline CG191 (2014, updated 2022), recommendations 1.2.1 and 1.2.2

Definitions of terms used in this quality statement

Community-acquired pneumonia

Pneumonia that is acquired outside hospital. Pneumonia that develops in a person living in a nursing or residential home is included in this definition. Pneumonia that develops in people who are immunocompromised, and terminal pneumonia associated with another disease are not included. [NICE's guideline on pneumonia in adults, terms used in this guideline, and expert opinion]

Mortality risk assessment in primary care

When a clinical diagnosis of community-acquired pneumonia is made in primary care, the healthcare professional should assess whether the person is at low, intermediate or high risk of death by calculating the CRB65 score at the initial assessment (box 1).

Box 1 CRB65 score for mortality risk assessment in primary care

CRB65 score is calculated by giving 1 point for each of the following prognostic features:

- confusion (abbreviated Mental Test score 8 or less, or new disorientation in person, place or time). For guidance on delirium, see the NICE guideline on delirium
- 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.

Patients are stratified for risk of death as follows:

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

Source: Lim et al. (2003) Defining community-acquired pneumonia severity on presentation to hospital: an international derivation and validation study. Thorax 58: 377–82.

[NICE's guideline on pneumonia in adults, recommendation 1.2.1]

Equality and diversity considerations

It is important to be aware of dementia when assessing confusion, and to adapt the assessment approach to meet individual needs.

Healthcare professionals should be aware of the needs of adults at the end of life and agree the approach for managing pneumonia in the context of the person's overall care plan.

Quality statement 2: Antibiotic therapy for diagnosed low-severity community-acquired pneumonia

Quality statement

Adults with low-severity community-acquired pneumonia are prescribed a 5-day course of a single antibiotic.

Rationale

Pneumonia is usually caused by bacteria and should be treated with antibiotic therapy. A 5-day course of a single antibiotic is usually an effective treatment for diagnosed low-severity community-acquired pneumonia unless symptoms do not improve. Prescribing a 5-day course will ensure that antibiotic therapy is not given for longer than necessary, and will contribute to effective antimicrobial stewardship. Healthcare professionals should give people advice on seeking further help if their symptoms do not show signs of improving after 3 days of antibiotic therapy.

Quality measures

Process

Proportion of adults with low-severity community-acquired pneumonia who receive a 5-day maximum course of a single antibiotic.

Numerator – the number in the denominator who are prescribed a 5-day maximum course of a single antibiotic.

Denominator – the number of adults with low-severity community-acquired pneumonia.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and

provider organisations, for example from patient records.

What the quality statement means for different audiences

Service providers (primary care services and secondary care services) ensure that adults with low-severity community-acquired pneumonia are prescribed a 5-day course of a single antibiotic.

Healthcare professionals (such as GPs, hospital clinicians and nurse practitioners) prescribe a 5-day course of a single antibiotic to adults with low-severity community-acquired pneumonia and give advice on seeking further help if symptoms do not show signs of improving.

Commissioners (NHS England and clinical commissioning groups) ensure that adults with low-severity community-acquired pneumonia are prescribed a 5-day course of a single antibiotic.

Adults with mild community-acquired pneumonia (also called low severity) are prescribed a 5-day course of an antibiotic.

Source guidance

Pneumonia (community-acquired): antimicrobial prescribing. NICE guideline NG138 (2019), recommendation 1.2.1

Definition of terms used in this quality statement

Community-acquired pneumonia

Pneumonia that is acquired outside hospital. Pneumonia that develops in a person living in a nursing or residential home is included in this definition. Pneumonia that develops in people who are immunocompromised, and terminal pneumonia associated with another disease are not included. [NICE's guideline on pneumonia in adults, terms used in this guideline, and expert opinion]

Quality statement 3: Chest X-ray and diagnosis within 4 hours of hospital presentation

Quality statement

Adults with suspected community-acquired pneumonia in hospital have a chest X-ray and receive a diagnosis within 4 hours of presentation.

Rationale

When community-acquired pneumonia is suspected in adults, it is important that a clinical assessment sequence is carried out. If the person presents at hospital, assessment should include performing and reviewing a chest X-ray, to help make a timely diagnosis in line with the 4-hour patient processing targets in A&E departments. This will ensure that treatment is given to adults with pneumonia as quickly as possible and that those who do not have community-acquired pneumonia are not given inappropriate antibiotic treatment.

Quality measures

Structure

Evidence of local arrangements and processes to ensure that adults with suspected community-acquired pneumonia in hospital have a chest X-ray and receive a diagnosis within 4 hours of presentation at hospital.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from clinical protocols.

Process

a) Proportion of diagnoses of community-acquired pneumonia in adults in hospital at

which the adult has a chest X-ray within 4 hours of presentation at hospital.

Numerator – the number in the denominator for which a chest X-ray was carried out within 4 hours of presentation at hospital.

Denominator – the number of diagnoses of community-acquired pneumonia in adults.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

b) Proportion of diagnoses of community-acquired pneumonia in adults in hospital which are made within 4 hours of presentation at hospital.

Numerator – the number in the denominator for which a diagnosis was made within 4 hours of presentation at hospital.

Denominator – the number of diagnoses of community-acquired pneumonia in adults in hospital.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

Outcome

Inappropriate antibiotic use.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

What the quality statement means for different audiences

Service providers (secondary care services) ensure that adults with suspected community-acquired pneumonia in hospital have a chest X-ray and receive a diagnosis

within 4 hours of presentation at hospital.

Healthcare professionals (such as hospital doctors and nurse practitioners) arrange a chest X-ray for adults with suspected community-acquired pneumonia in hospital, and confirm or rule out a diagnosis of community-acquired pneumonia within 4 hours of presentation at hospital.

Commissioners (clinical commissioning groups) commission services in which adults with suspected community-acquired pneumonia in hospital have a chest X-ray and receive a diagnosis within 4 hours of presentation at hospital.

Adults with suspected pneumonia who go to hospital have a chest X-ray and are diagnosed within 4 hours of presentation at hospital.

Source guidance

Pneumonia in adults: diagnosis and management. NICE guideline CG191 (2014, updated 2022), recommendation 1.2.8 (key priority for implementation)

Definition of terms used in this quality statement

Suspected community-acquired pneumonia

Community-acquired pneumonia is acquired outside hospital. Pneumonia that develops in a person living in a nursing or residential home is included in this definition. It is suspected in adults who have symptoms and signs of lower respiratory tract infection, and diagnosed in adults who, in the opinion of the doctor and in the absence of a chest X-ray, are likely to have community-acquired pneumonia. Symptoms and signs include, but are not limited to, one or more of the following: fever, shortness of breath, cough, pleuritic chest pain, increased respiratory rate or work of breathing, and localised crepitations heard on auscultation of the person's chest.

Pneumonia that develops in people who are immunocompromised, and terminal pneumonia associated with another disease are not included. [NICE's guideline on pneumonia in adults, terms used in this guideline, and expert opinion]

Equality and diversity considerations

Adults with pneumonia or their carers who have difficulty speaking or understanding English should have access to an interpreter or advocate if needed to ensure that they understand the diagnosis.

Quality statement 4: Mortality risk assessment in hospital using CURB65 score

Quality statement

Adults have a mortality risk assessment using the CURB65 score when they are diagnosed with community-acquired pneumonia in hospital.

Rationale

Assessing mortality risk using the CURB65 score in hospital informs clinical judgement and supports decision-making about how the infection is treated, whether the person should receive home- or hospital-based care, the choice of microbiological tests and the choice of antibiotic. This will ensure that treatment is based on the severity of the infection and will improve treatment outcomes.

Quality measures

Structure

Evidence of local arrangements to ensure that adults have a mortality risk assessment using the CURB65 score when they are diagnosed with community-acquired pneumonia in hospital.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from clinical protocols.

Process

Proportion of diagnoses of community-acquired pneumonia in adults in hospital at which the adult has a mortality risk assessment using the CURB65 score.

Numerator – the number in the denominator at which the adult has a mortality risk assessment using the CURB65 score.

Denominator – the number of diagnoses of community-acquired pneumonia in adults in hospital.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

What the quality statement means for different audiences

Service providers (secondary care and ambulatory care services) ensure that adults have a mortality risk assessment using the CURB65 score when they are diagnosed with community-acquired pneumonia in hospital.

Healthcare professionals (such as hospital doctors and nurse practitioners) carry out a mortality risk assessment using the CURB65 score when adults are diagnosed with community-acquired pneumonia in hospital.

Commissioners (clinical commissioning groups) commission services in which adults have a mortality risk assessment using the CURB65 score when they are diagnosed with community-acquired pneumonia in hospital.

Adults diagnosed with community-acquired pneumonia in hospital have an assessment to find out how serious the pneumonia is. This includes a CURB65 score, which uses the person's age, symptoms, blood pressure and a blood test to help decide how serious the risks are for that person, whether they need to stay in hospital and what treatment they should have.

Source guidance

Pneumonia in adults: diagnosis and management. NICE guideline CG191 (2014, updated 2022), recommendations 1.2.3 and 1.2.4

Definitions of terms used in this quality statement

Community-acquired pneumonia

Pneumonia that is acquired outside hospital. Pneumonia that develops in a person living in a nursing or residential home is included in this definition. Pneumonia that develops in people who are immunocompromised, and terminal pneumonia associated with another disease are not included. [NICE's guideline on pneumonia in adults, terms used in this guideline, and expert opinion]

Mortality risk assessment in hospital

When a diagnosis of community-acquired pneumonia is made at presentation to hospital, the healthcare professional should assess whether the person is at low, intermediate or high risk of death by calculating the CURB65 score (box 2).

Box 2 CURB65 score for mortality risk assessment in hospital

CURB65 score is calculated by giving 1 point for each of the following prognostic features:

- confusion (abbreviated Mental Test score 8 or less, or new disorientation in person, place or time). For guidance on delirium, see the NICE guideline on delirium
- 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.

Patients are stratified for risk of death as follows:

- 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).

Source: Lim et al. (2003) Defining community-acquired pneumonia severity on presentation to hospital: an international derivation and validation study. Thorax 58: 377–82.

[NICE's guideline on pneumonia in adults, recommendation 1.2.3]

Equality and diversity considerations

It is important to be aware of dementia when assessing confusion and to adapt the assessment approach to meet individual needs.

Healthcare professionals should be aware of the needs of people at the end of life and agree the approach for managing pneumonia in the context of their overall care plan.

Quality statement 5: Antibiotic therapy within 4 hours in hospital

Quality statement

Adults with community-acquired pneumonia who are admitted to hospital start antibiotic therapy within 4 hours of presentation.

Rationale

Starting appropriate antibiotic therapy as soon as possible (and within 4 hours of presentation) is important for treating adults with community-acquired pneumonia who are admitted to hospital. Evidence shows that early treatment is associated with improved clinical outcomes.

Quality measures

Structure

Evidence of local arrangements to ensure that adults with community-acquired pneumonia who are admitted to hospital start antibiotic therapy within 4 hours of presentation.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from clinical protocols.

Process

Proportion of hospital admissions of community-acquired pneumonia in adults at which antibiotic therapy is started within 4 hours of presentation.

Numerator – the number in the denominator at which antibiotic therapy is started within 4 hours of presentation.

Denominator – the number of hospital admissions of community-acquired pneumonia in adults.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

Outcome

Mortality due to pneumonia.

Data source: No routinely collected national data for this measure has been identified. Data can be collected from information recorded locally by healthcare professionals and provider organisations, for example from patient records.

What the quality statement means for different audiences

Service providers (secondary care services) ensure that adults who are admitted to hospital and diagnosed with community-acquired pneumonia start antibiotic therapy within 4 hours of presentation.

Healthcare professionals (hospital clinicians) ensure adults who are admitted to hospital and diagnosed with community-acquired pneumonia start antibiotic therapy within 4 hours of presentation.

Commissioners (clinical commissioning groups) commission services in which adults who are admitted to hospital and diagnosed with community-acquired pneumonia start antibiotic therapy within 4 hours of presentation.

Adults who are admitted to hospital and diagnosed with community-acquired pneumonia start antibiotic treatment within 4 hours of being seen.

Source guidance

- Pneumonia (community-acquired): antimicrobial prescribing. NICE guideline NG138 (2019), recommendation 1.1.2

- Pneumonia in adults: diagnosis and management. NICE guideline CG191 (2014, updated 2022), recommendation 1.2.8

Definition of terms used in this quality statement

Community-acquired pneumonia

Pneumonia that is acquired outside hospital. Pneumonia that develops in a person living in a nursing or residential home is included in this definition. Pneumonia that develops in people who are immunocompromised, and terminal pneumonia associated with another disease are not included. [NICE's guideline on pneumonia in adults, terms used in this guideline, and expert opinion]

Update information

Minor changes since publication

January 2023: This quality standard was checked to make sure that it aligns with the updated NICE guideline on delirium: prevention, diagnosis and management. References and source guidance sections have been updated. Data sources have been updated throughout.

September 2022: We updated the source guidance for statements 2 and 5 to include NICE's guideline on pneumonia (community-acquired): antimicrobial prescribing.

February 2018: Changes have been made to correct the outcomes in statements 1 and 3.

About this quality standard

NICE quality standards describe high-priority areas for quality improvement in a defined care or service area. Each standard consists of a prioritised set of specific, concise and measurable statements. NICE quality standards draw on existing NICE or NICE-accredited guidance that provides an underpinning, comprehensive set of recommendations, and are designed to support the measurement of improvement.

Expected levels of achievement for quality measures are not specified. Quality standards are intended to drive up the quality of care, and so achievement levels of 100% should be aspired to (or 0% if the quality statement states that something should not be done). However, this may not always be appropriate in practice. Taking account of safety, shared decision-making, choice and professional judgement, desired levels of achievement should be defined locally.

Information about how NICE quality standards are developed is available from the NICE website.

See our webpage on quality standards advisory committees for details about our standing committees. Information about the topic experts invited to join the standing members is available from the webpage for this quality standard.

NICE has produced a quality standard service improvement template to help providers make an initial assessment of their service compared with a selection of quality statements. This tool is updated monthly to include new quality standards.

NICE guidance and quality standards apply in England and Wales. Decisions on how they apply in Scotland and Northern Ireland are made by the Scottish government and Northern Ireland Executive. NICE quality standards may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

Diversity, equality and language

Equality issues were considered during development and equality assessments for this quality standard are available. Any specific issues identified during development of the

quality statements are highlighted in each statement.

Commissioners and providers should aim to achieve the quality standard in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity and foster good relations. Nothing in this quality standard should be interpreted in a way that would be inconsistent with compliance with those duties.

ISBN: 978-1-4731-1624-5

Endorsing organisation

This quality standard has been endorsed by NHS England, as required by the Health and Social Care Act (2012)

Supporting organisations

Many organisations share NICE's commitment to quality improvement using evidence-based guidance. The following supporting organisations have recognised the benefit of the quality standard in improving care for patients, carers, service users and members of the public. They have agreed to work with NICE to ensure that those commissioning or providing services are made aware of and encouraged to use the quality standard.

- British Thoracic Society (BTS)
- Intensive Care Society
- Royal College of Nursing (RCN)
- Royal College of General Practitioners (RCGP)
- Society for Acute Medicine (SAM)
- MRSA Action UK