

# Antimicrobial stewardship

Quality standard

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## Contents

|   |    |
|---|----|
| Introduction .....  | 5  |
| Why this quality standard is needed .....   | 5  |
| How this quality standard supports delivery of outcome frameworks .....                     | 7  |
| Safety and people's experience of care .....  | 9  |
| Coordinated services.....   | 9  |
| List of quality statements.....   | 11 |
| Quality statement 1: Advice on self-limiting conditions .....                               | 12 |
| Quality statement.....  | 12 |
| Rationale .....   | 12 |
| Quality measures .....  | 12 |
| What the quality statement means for service providers, prescribers and commissioners ..... | 13 |
| What the quality statement means for patients, people using services and carers .....       | 13 |
| Source guidance.....  | 14 |
| Definitions of terms used in this quality statement .....                                   | 14 |
| Equality and diversity considerations.....  | 15 |
| Quality statement 2: Back-up (delayed) prescribing .....                                    | 16 |
| Quality statement.....  | 16 |
| Rationale .....   | 16 |
| Quality measures .....  | 16 |
| What the quality statement means for service providers, prescribers and commissioners ..... | 17 |
| What the quality statement means for patients, people using services and carers .....       | 17 |
| Source guidance.....  | 18 |
| Definitions of terms used in this quality statement .....                                   | 18 |
| Equality and diversity considerations.....  | 18 |
| Quality statement 3: Recording information .....  | 19 |
| Quality statement.....  | 19 |
| Rationale .....   | 19 |

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|   |           |
|---|-----------|
| Quality measures .....  | 19        |
| What the quality statement means for service providers, prescribers and commissioners ..... | 20        |
| What the quality statement means for patients, people using services and carers .....       | 20        |
| Source guidance.....  | 20        |
| <b>Quality statement 4: Microbiological samples.....</b>                                    | <b>21</b> |
| Quality statement.....  | 21        |
| Rationale .....   | 21        |
| Quality measures .....  | 21        |
| What the quality statement means for service providers, prescribers and commissioners ..... | 22        |
| What the quality statement means for patients, people using services and carers .....       | 23        |
| Source guidance.....  | 23        |
| <b>Quality statement 5: Data collection and feedback.....</b>                               | <b>24</b> |
| Quality statement.....  | 24        |
| Rationale .....   | 24        |
| Quality measures .....  | 24        |
| What the quality statement means for service providers, prescribers and commissioners ..... | 25        |
| What the quality statement means for patients, people using services and carers .....       | 26        |
| Source guidance.....  | 26        |
| Definitions of terms used in this quality statement .....                                   | 26        |
| <b>Quality statement 6 (developmental statement): electronic prescribing systems.....</b>   | <b>27</b> |
| Quality statement.....  | 27        |
| Rationale .....   | 27        |
| Quality measures .....  | 27        |
| What the quality statement means for service providers, prescribers and commissioners ..... | 28        |
| What the quality statement means for patients, people using services and carers .....       | 28        |
| Source guidance.....  | 29        |
| <b>Using the quality standard.....</b>  | <b>30</b> |
| Quality measures .....  | 30        |

|  |    |
|--|----|
| Levels of achievement .....                                      | 30 |
| Using other national guidance and policy documents.....          | 30 |
| Diversity, equality and language .....                           | 31 |
| Development sources.....   | 32 |
| Evidence sources.....  | 32 |
| Policy context .....   | 32 |
| Related NICE quality standards .....                             | 33 |
| Published .....  | 33 |
| Future quality standards.....                                    | 33 |
| Quality Standards Advisory Committee and NICE project team ..... | 35 |
| NICE project team .....  | 37 |
| About this quality standard.....                                 | 38 |

This standard is based on NG15.

This standard should be read in conjunction with QS113, QS110, QS90, QS75, QS64, QS61, QS49, QS15, QS10, QS122, QS135, QS141, QS161 and QS168.

## Introduction

This quality standard covers the effective use of antimicrobials (antibacterial, antiviral, antifungal and antiparasitic medicines) to reduce the emergence of antimicrobial resistance (loss of effectiveness of antimicrobials). It covers all settings, all formulations of antimicrobials (oral, parenteral and topical agents) and is for health and social care practitioners, organisations that commission, provide or support the provision of care, as well as people using antimicrobials and their carers. For more information see the [antimicrobial stewardship topic overview](#). NICE quality standards focus on aspects of health and social care that are commissioned locally. Areas of national policy, such as legislative changes and antimicrobial licensing, are therefore not covered by this quality standard.

### *Why this quality standard is needed*

In the [2013 annual report](#), Professor Dame Sally Davies, Chief Medical Officer, said 'Antimicrobial resistance poses a catastrophic threat. If we don't act now, any one of us could go into hospital in 20 years for minor surgery and die because of an ordinary infection that can't be treated by antibiotics'.

In the past 50 years, a wide array of antimicrobials has been developed. However, microorganisms are emerging with resistance to many of these, rendering them ineffective. The development of new antimicrobials has slowed substantially and it is possible that in the future infectious diseases and infections that were previously easy to control will become significant threats to health. Standard surgical procedures could become riskier, as could treatments that result in immunosuppression (chemotherapy or organ transplantation), which rely on being able to treat infections in vulnerable patients.

Since 1998, when the World Health Assembly agreed the first resolution on antimicrobial resistance, there has been increasing national and international awareness of the need to use antimicrobials appropriately. In May 2015, the World Health Organization published a [global action plan on antimicrobial resistance](#).

It is difficult to achieve a balance between using antimicrobials when they are really needed and reducing use when they are not indicated. There are concerns about possible harm to people if antimicrobials are not given, but there is agreement about the need to raise awareness that an increase in antimicrobial resistance is associated with antimicrobial prescribing. Antimicrobial stewardship requires a system-wide approach with individuals and organisations working together to preserve antimicrobial effectiveness.

In 2015, the English surveillance programme for antimicrobial utilisation and resistance (ESPAUR) published a [report reviewing prescribing patterns for antimicrobials in different care settings between 2010 and 2014](#). This showed that:

- total consumption of antibiotics in primary and secondary care increased by 6.5%, from 21.6 defined daily doses (DDD) per 1,000 inhabitants per day in 2011 to 23.0 DDD per 1,000 inhabitants per day in 2014
- combined community and hospital prescriptions increased by 6%
- general practice consumption increased by 6.2%
- prescribing to hospital inpatients increased by 11.7%
- prescribing to hospital outpatients increased by 8.5%
- dental prescribing increased by 2.8%
- 'other community prescribing' increased by 5.5%.

Antibiotic prescribing in primary care has been shown to directly affect antimicrobial resistance<sup>[1]</sup>.

Between 2010 and 2014, most antimicrobial prescribing occurred in general practice. In 2014, 74% of antimicrobial prescribing was in general practice, with 11% and 7% for hospital inpatients and outpatients respectively, 5% for patients seen in dental practices and 3% in other community settings.

The quality standard is expected to contribute to improvements in the following outcomes:

- antimicrobial resistance
- mortality from infectious disease
- mortality among people who are immunosuppressed.

## How this quality standard supports delivery of outcome frameworks

NICE quality standards are a concise set of prioritised statements designed to drive measurable improvements in the 3 dimensions of quality – safety, experience and effectiveness of care – for a particular area of health or care. They are derived from high-quality guidance, such as that from NICE or other sources accredited by NICE. This quality standard, in conjunction with the guidance on which it is based, should contribute to the improvements outlined in the following 2 outcomes frameworks published by the Department of Health:

- [NHS Outcomes Framework 2015–16](#)
- [Public Health Outcomes Framework 2013–16](#).

Tables 1 and 2 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

**Table 1 [NHS Outcomes Framework 2015–16](#)**

| Domain                                     | Overarching indicators and improvement areas   |
|--|--|
| 1 Preventing people from dying prematurely | <p><b>Overarching indicators</b></p> <p>1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare</p> <p>1b Life expectancy at 75</p> <p>1c Neonatal mortality and stillbirths</p> <p><b>Improvement areas</b></p> <p><b>Reducing premature mortality from the major causes of death</b></p> <p>1.2 Under 75 mortality rate from respiratory disease*</p> <p>1.4 Under 75 mortality rate from cancer*</p> <p><b>Reducing mortality in children</b></p> <p>1.6 i Infant mortality*</p> |

|  |   |
|--|---|
| <p>5 Treating and caring for people in a safe environment and protecting them from avoidable harm</p>                                  | <p><b>Overarching indicators</b></p> <p><i>5a Deaths attributable to problems in healthcare</i></p> <p><i>5b Severe harm attributable to problems in healthcare</i></p> <p><b>Improvement areas</b></p> <p><b>Reducing the incidence of avoidable harm</b></p> <p>5.2 Incidence of healthcare associated infection (HCAI)</p> <p>i MRSA</p> <p>ii C. difficile</p> <p><b>Improving the culture of safety reporting</b></p> <p>5.6 Patient safety incidents reported</p> |
| <p><b>Alignment with Public Health Outcomes Framework</b></p> <p>* Indicator is shared</p> <p>Indicators in italics in development</p> |   |

**Table 2 Public health outcomes framework for England, 2013–16**

| Domain                     | Objectives and indicators   |
|----------------------------|---|
| <p>3 Health protection</p> | <p><b>Objective</b></p> <p>The population's health is protected from major incidents and other threats, whilst reducing health inequalities</p> <p><b>Indicators</b></p> <p>3.5 Treatment completion for TB</p> <p>3.7 Comprehensive, agreed inter-agency plans for responding to public health incidents and emergencies</p> |



|  |  |
|--|--|
| <p>4 Healthcare public health and preventing premature mortality</p>             | <p><b>Objective</b></p> <p>Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities</p> <p><b>Indicators</b></p> <p>4.1 Infant mortality*</p> <p>4.5 Under 75 mortality rate from cancer*</p> <p>4.7 Under 75 mortality rate from respiratory diseases*</p> <p>4.8 Mortality rate from communicable diseases</p> |
| <p><b>Alignment with NHS Outcomes Framework</b></p> <p>* Indicator is shared</p> |  |

## *Safety and people's experience of care*

Ensuring that care is safe and that people have a positive experience of care is vital in a high-quality service. It is important to consider these factors when planning and delivering antimicrobial stewardship across healthcare settings.

NICE has developed guidance and an associated quality standard on patient experience in adult NHS services (see the NICE pathway on [patient experience in adult NHS services](#)), which should be considered alongside this quality standard. They specify that people receiving care should be treated with dignity, have opportunities to discuss their preferences, and be supported to understand their options and make fully informed decisions. They also cover the provision of information to people using services. Quality statements on these aspects of patient experience are not usually included in topic-specific quality standards. However, recommendations in the development sources for quality standards that affect people's experience of using services and are specific to the topic are considered during quality statement development.

## *Coordinated services*

A whole system, integrated approach to antimicrobial stewardship is fundamental to preserving the effectiveness of antimicrobial medicines.

The Health and Social Care Act 2012 sets out a clear expectation that the care system should consider NICE quality standards in planning and delivering services, as part of a general duty to secure continuous improvement in quality. Commissioners and providers of health and social care

should refer to the library of NICE quality standards when designing high-quality services.

This quality standard is very closely related to the NICE quality standards on [surgical site infection, infection prevention and control](#), [antibiotics for neonatal infection](#) and [healthcare-associated infections](#), and should be read alongside them. Other quality standards that should also be considered when promoting and monitoring the judicious use of antimicrobials are listed in [related quality standards](#).

## Training and competencies

The quality standard should be read in the context of national and local guidelines on training and competencies. All prescribers of antimicrobials should have sufficient and appropriate training and competencies to deliver the actions and interventions described in the quality standard. Quality statements on staff training and competency are not usually included in quality standards. However, recommendations in the development sources on specific types of training for the topic that exceed standard professional training are considered during quality statement development.

## Role of families and carers

Quality standards recognise the important role families and carers have in supporting people using antimicrobials. If appropriate, healthcare professionals and social care practitioners should ensure that family members and carers are given advice on the judicious use of antimicrobials and the adverse consequences of overusing them.

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<sup>[1]</sup> Costelloe C, Metcalfe C, Lovering A et al.(2010) [Effect of antibiotic prescribing in primary care on antimicrobial resistance in individual patients: systematic review and meta-analysis](#). BMJ 340: c2096

## List of quality statements

Statement 1. People with a self-limiting condition, as assessed by a primary care prescriber, receive advice about self-management and adverse consequences of overusing antimicrobials.

Statement 2. Prescribers in primary care can use back-up (delayed) antimicrobial prescribing when there is clinical uncertainty about whether a condition is self-limiting or is likely to deteriorate.

Statement 3. People prescribed an antimicrobial have the clinical indication, dose and duration of treatment documented in their clinical record.

Statement 4. People in hospital who are prescribed an antimicrobial have a microbiological sample taken and their treatment reviewed when the results are available.

Statement 5. Individuals and teams responsible for antimicrobial stewardship monitor data and provide feedback on prescribing practice at prescriber, team, organisation and commissioner level.

Statement 6 (developmental statement). Prescribers in secondary and dental care use electronic prescribing systems that link indication with the antimicrobial prescription.

## Quality statement 1: Advice on self-limiting conditions

### *Quality statement*

People with a self-limiting condition, as assessed by a primary care prescriber, receive advice about self-management and adverse consequences of overusing antimicrobials.

### *Rationale*

People with common colds, sore throat, flu, otitis media and other self-limiting conditions may not know that they are likely to get better without treatment and they may expect to be prescribed an antimicrobial. Primary care prescribers should manage people's expectations by describing the adverse consequences of using antimicrobials when they are not needed, both for the person and the population as a whole. They should also give advice on what the person can do to help their condition improve (self-management).

### *Quality measures*

#### **Structure**

a) Evidence of local arrangements to ensure that people with a self-limiting condition, as assessed by a primary care prescriber, receive advice about self-management and adverse consequences of overusing antimicrobials.

**Data source:** Local data collection.

b) Evidence of local arrangements to promote self-management of self-limiting conditions and raise awareness of risks associated with overusing antimicrobials.

**Data source:** Local data collection.

#### **Process**

a) Proportion of presentations in primary care assessed as a self-limiting condition with a record stating that advice about self-management was given.

**Numerator** – the number in the denominator with a record stating that advice about self-management was given.

Denominator – the number of presentations in primary care assessed as a self-limiting condition.

*Data source:* Local data collection and [TARGET Antibiotics toolkit](#).

b) Proportion of presentations in primary care assessed as a self-limiting condition with a record stating that advice about the adverse consequences of overusing antimicrobials was given.

Numerator – the number in the denominator with a record stating that advice about the adverse consequences of overusing antimicrobials was given.

Denominator – the number of presentations in primary care assessed as a self-limiting condition.

*Data source:* Local data collection.

## Outcome

Antimicrobial prescribing rates in primary care.

*Data source:* Local data collection.

### *What the quality statement means for service providers, prescribers and commissioners*

**Service providers** (such as GP practices, health centres, pharmacies, community services) ensure that systems are in place for people with a self-limiting condition to receive advice about self-management and the adverse consequences of overusing antimicrobials.

**Prescribers in primary care** (such as GPs, nurses and pharmacists) ensure that they provide people with a self-limiting condition with advice on self-management and the adverse consequences of overusing antimicrobials.

**Commissioners** (clinical commissioning groups, NHS England) ensure that they commission services that provide people with a self-limiting condition with advice on self-management and the adverse consequences of overusing antimicrobials.

### *What the quality statement means for patients, people using services and carers*

**People with a condition that is likely to get better on its own** (such as cold, flu, earache or tonsillitis)

who go to a GP, practice nurse or pharmacist are given advice on what they can do to help their condition improve and why it's important only to use antimicrobials when they are really needed.

### *Source guidance*

- [Antimicrobial stewardship](#) (2015) NICE guideline NG15, recommendation 1.1.31

### *Definitions of terms used in this quality statement*

#### **Self-limiting condition**

A self-limiting condition is likely to resolve without antimicrobial treatment. Self-limiting conditions include acute otitis media, acute cough, acute bronchitis, acute sore throat, acute pharyngitis, acute tonsillitis, acute rhinosinusitis and the common cold.

[[Respiratory tract infections \(self-limiting\): prescribing antibiotics](#) (2008) NICE guideline CG69 (full guideline) and expert opinion]

#### **Advice for people with self-limiting conditions**

Prescribers should discuss with the person and/or their family members or carers (as appropriate):

- the likely nature of the condition
- why prescribing an antimicrobial may not be the best option
- alternative options to prescribing an antimicrobial
- their views on antimicrobials, taking into account their priorities or concerns about their current illness and whether they want or expect an antimicrobial
- the benefits and harms of immediate antimicrobial prescribing
- how long they should expect the symptoms of their self-limiting condition to last
- what they should do if their condition gets worse (safety netting advice) or if they have problems as a result of treatment
- what they can do to minimise spreading the infection to others (such as good hand hygiene).

[[Antimicrobial stewardship](#) (2015) NICE guideline NG15, recommendation 1.1.31 and expert opinion]

## *Equality and diversity considerations*

Healthcare professionals may need to consider how to advise people who have difficulties understanding the information given to them because of difficulty in understanding English or cognitive impairment.

## Quality statement 2: Back-up (delayed) prescribing

### *Quality statement*

Prescribers in primary care can use back-up (delayed) antimicrobial prescribing when there is clinical uncertainty about whether a condition is self-limiting or is likely to deteriorate.

### *Rationale*

When there is clinical uncertainty about whether a condition is self-limiting or is likely to deteriorate, back-up prescribing (also known as delayed prescribing) offers healthcare professionals an alternative to immediate antimicrobial prescribing. It encourages self-management as a first step, but allows a person to access antimicrobials without another appointment if their condition gets worse.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that prescribers in primary care can use back-up (delayed) antimicrobial prescribing if there is uncertainty about whether a condition is self-limiting or is likely to deteriorate.

**Data source:** Local data collection.

#### **Process**

a) Proportion of prescriptions for antimicrobials issued as a back-up (delayed) prescription.

Numerator – the number in the denominator issued as a back-up (delayed) prescription.

Denominator – the number of prescriptions for antimicrobials issued.

**Data source:** Local data collection.

b) Proportion of people issued a back-up (delayed) prescription for antimicrobials who are advised when to use the prescription.

Numerator – the number in the denominator who are told when to use the prescription.



Denominator – the number of people issued a back-up (delayed) prescription for antimicrobials.

*Data source:* Local data collection and [TARGET Antibiotics toolkit](#).

## Outcome

a) Back-up (delayed) prescriptions for antimicrobials that are dispensed.

*Data source:* Local data collection.

b) Antimicrobial prescribing rates in primary care.

*Data source:* Local data collection.

## *What the quality statement means for service providers, prescribers and commissioners*

**Service providers** (such as GP practices, health centres, pharmacies) ensure that systems are in place to allow back-up (delayed) antimicrobial prescribing if there is uncertainty about whether a condition is self-limiting or is likely to deteriorate.

**Prescribers in primary care** (such as GPs, nurses, pharmacists) can use back-up (delayed) antimicrobial prescribing if there is uncertainty about whether a condition is self-limiting or is likely to deteriorate.

**Commissioners** (clinical commissioning groups, NHS England) allow and monitor the use of back-up (delayed) antimicrobial prescribing when there is uncertainty about whether a condition is self-limiting or is likely to deteriorate.

## *What the quality statement means for patients, people using services and carers*

**People with conditions that may need antimicrobial treatment, but may get better without treatment**, are told that they can have a prescription for an antimicrobial but they should only use it if their condition gets worse. This is known as a back-up or delayed prescription. They are given clear advice about when they should use the prescription.

## *Source guidance*

- [Antimicrobial stewardship](#) (2015) NICE guideline NG15, recommendation 1.1.34

## *Definitions of terms used in this quality statement*

### **Back-up (delayed) prescribing**

A back-up (delayed) prescription is a prescription (which can be post-dated) given to a patient or carer, with the assumption that it will not be dispensed immediately, but in a few days if symptoms worsen.

When using back-up (delayed) antibiotic prescribing, patients should be offered:

- reassurance that antibiotics are not needed immediately because they are likely to make little difference to symptoms and may have side effects (for example, diarrhoea, vomiting and rash)
- advice about using the back-up (delayed) prescription if symptoms get significantly worse
- advice about how long they should expect their symptoms to last
- advice about re-consulting if symptoms get significantly worse despite using the back-up (delayed) prescription.

A back-up (delayed) prescription with instructions about use can either be given to the patient or left at an agreed location (for example, the local pharmacy) to be collected at a later date.

[[Respiratory tract infections \(self-limiting\): prescribing antibiotics](#) (2008) NICE guideline CG69, recommendation 1.1.6 and expert opinion]

## *Equality and diversity considerations*

Prescribers may need to consider how to advise people who have difficulties in understanding the information given to them because of difficulty in understanding English or cognitive impairment.

## Quality statement 3: Recording information

### *Quality statement*

People prescribed an antimicrobial have the clinical indication, dose and duration of treatment documented in their clinical record.

### *Rationale*

Recording in patients' records the clinical indication (that is, the results of clinical assessment, symptoms and diagnosis) for an antimicrobial, and the prescribed dose and duration of treatment, allows better management during follow-up of care and transfer of care to another setting. It also supports monitoring of prescribing practice and identification of appropriate and inappropriate prescribing in all settings.

### *Quality measures*

#### Structure

Evidence of local arrangements and processes to ensure that all prescribers document the clinical indication, dose and duration of treatment in patients' records when prescribing an antimicrobial.

**Data source:** Local data collection.

#### Process

Proportion of prescriptions for antimicrobials with the clinical indication, dose and duration of treatment documented.

Numerator – the number in the denominator with the clinical indication, dose and duration of treatment documented.

Denominator – the number of prescriptions for antimicrobials.

**Data source:** Local data collection, [Start smart then focus tools](#) and [TARGET Antibiotics toolkit](#).

#### Outcome

Antimicrobial prescribing rates.

*Data source:* Local data collection.

### *What the quality statement means for service providers, prescribers and commissioners*

**Service providers** (such as hospitals, walk-in centres, GP practices, health centres, dental care providers, pharmacies, community services) monitor standards of record-keeping to check that clinical indication, dose and duration of treatment are documented when antimicrobials are prescribed.

**Prescribers** document in patients' clinical records the clinical indication, dose and duration of treatment when they prescribe antimicrobials.

**Commissioners** (clinical commissioning groups, NHS England) ensure that services monitor standards of record-keeping to check that clinical indication, dose and duration of treatment are documented when antimicrobials are prescribed.

### *What the quality statement means for patients, people using services and carers*

**People who are prescribed an antimicrobial** have the reason recorded in their medical record, as well as how long they should take the antimicrobial and the dose.

### *Source guidance*

- [Antimicrobial stewardship](#) (2015) NICE guideline NG15, recommendations 1.1.26 and 1.1.32

## Quality statement 4: Microbiological samples

### *Quality statement*

People in hospital who are prescribed an antimicrobial have a microbiological sample taken and their treatment reviewed when the results are available.

### *Rationale*

Analysing microbiological samples allows more targeted and effective prescribing of narrow-spectrum antimicrobials or stopping antimicrobials if they are not necessary or effective. In hospital, microbiological samples should be taken before antimicrobials are prescribed. In some situations, it may be necessary to start antimicrobial treatment immediately (for example, in people with severe sepsis or life-threatening infections) but the treatment should be reviewed when the microbiological results are available.

### *Quality measures*

#### **Structure**

Evidence of local arrangements and processes to ensure that people in hospital who are prescribed an antimicrobial have a microbiological sample taken and their treatment reviewed when the results are available.

**Data source:** Local data collection, [Start smart then focus toolkit](#) and [TARGET Antibiotics toolkit](#).

#### **Process**

a) Proportion of prescriptions for antimicrobials issued to people admitted to hospital with a record of a microbiological sample being taken.

Numerator – the number in the denominator with a record of a microbiological sample being taken.

Denominator – the number of prescriptions for antimicrobials issued to people admitted to hospital.

**Data source:** Local data collection.

b) Proportion of prescriptions for antimicrobials issued to people admitted to hospital and

reviewed when microbiological results become available.

**Numerator** – the number in the denominator reviewed when the microbiological results become available.

**Denominator** – the number of prescriptions for antimicrobials issued to people admitted to hospital with a record of a microbiological sample being taken.

*Data source:* Local data collection.

## Outcome

a) Altered or withdrawn prescriptions for antimicrobials following microbiological results showing lack of effectiveness of initial antimicrobial treatment.

*Data source:* Local data collection.

b) Antimicrobial prescribing rates in hospitals.

*Data source:* Local data collection.

c) Length of hospital stay.

*Data source:* Local data collection.

## *What the quality statement means for service providers, prescribers and commissioners*

**Service providers** (hospitals) ensure that systems are in place for people in hospital to have a microbiological sample taken before they are prescribed an antimicrobial, and have the treatment reviewed when the microbiological results are available.

**Prescribers in hospitals** ensure that microbiological samples are taken before they prescribe antimicrobials and that they review the treatment when the microbiological results are available.

**Commissioners** (clinical commissioning groups, NHS England) ensure that they commission services that take microbiological samples from people in hospital before they are prescribed antimicrobials, and that review the treatment when the microbiological results are available.

## *What the quality statement means for patients, people using services and carers*

People who are in hospital have a sample taken before they are prescribed an antimicrobial to find out what is causing the infection. They may be given an antimicrobial immediately, but once the test results come back the prescription is checked to make sure that the antimicrobial is the right one and will work against the infection.

### *Source guidance*

- [Antimicrobial stewardship](#) (2015) NICE guideline NG15, recommendations 1.1.27 and 1.1.29

## Quality statement 5: Data collection and feedback

### *Quality statement*

Individuals and teams responsible for antimicrobial stewardship monitor data and provide feedback on prescribing practice at prescriber, team, organisation and commissioner level.

### *Rationale*

Monitoring and reviewing prescribing data enables individuals and teams responsible for antimicrobial stewardship to check adherence to local formularies, provide feedback, recognise good practice and to challenge inappropriate prescribing. It also allows peer review, and identifying training needs and areas for quality improvement.

### *Quality measures*

#### **Structure**

a) Evidence of local arrangements to deliver an antimicrobial stewardship programme.

*Data source:* Local data collection.

b) Evidence of local arrangements and processes to ensure that individuals and teams responsible for antimicrobial stewardship monitor data and provide feedback on prescribing practice at prescriber, team, organisation and commissioner level.

*Data source:* Local data collection.

#### **Process**

a) Proportion of prescribers who receive feedback on their antimicrobial prescribing practice.

Numerator – the number in the denominator who receive feedback on their antimicrobial prescribing practice.

Denominator – the number of prescribers.

*Data source:* Local data collection.



b) Proportion of teams within an organisation that receive feedback on their antimicrobial prescribing practice.

Numerator – the number in the denominator that receive feedback on their antimicrobial prescribing practice.

Denominator – the number of teams prescribing antimicrobials within an organisation.

*Data source:* Local data collection.

c) Proportion of organisations within a specified commissioning area that receive feedback on their antimicrobial prescribing practice.

Numerator – the number in the denominator that receive feedback on their antimicrobial prescribing practice.

Denominator – the number of organisations prescribing antimicrobials within a specified commissioning area.

## Outcome

Antimicrobial prescribing rates.

### *What the quality statement means for service providers, prescribers and commissioners*

**Service providers** (such as hospitals, GP practices, walk-in centres, dental practices, pharmacies, community health services) ensure that systems are in place for individuals and teams responsible for antimicrobial stewardship within the service to monitor data and provide feedback on prescribing at prescriber, team, organisation and commissioner level. The frequency and specific content of the feedback should be agreed locally between commissioners and service providers.

**Prescribers** receive feedback on their individual antimicrobial prescribing practice and the antimicrobial prescribing practice of their team, organisation and commissioning group from individuals and teams responsible for antimicrobial stewardship within the organisation.

**Commissioners** (clinical commissioning groups, NHS England) ensure that they commission services that have individuals and teams responsible for antimicrobial stewardship who monitor

data and provide feedback on antimicrobial prescribing practice at prescriber, team, organisation and commissioner level. The frequency and specific content of the feedback should be agreed locally between commissioners and service providers.

### *What the quality statement means for patients, people using services and carers*

People receive care from healthcare professionals whose prescribing of antimicrobials is monitored to make sure that it is safe and appropriate.

### *Source guidance*

- [Antimicrobial stewardship](#) (2015) NICE guideline NG15, recommendations 1.1.1 and 1.1.3

### *Definitions of terms used in this quality statement*

#### **Antimicrobial stewardship**

The term 'antimicrobial stewardship' is defined as an organisational or healthcare-system-wide approach to promoting and monitoring judicious use of antimicrobials to preserve their future effectiveness.

[[Antimicrobial stewardship](#) (2015) NICE guideline NG15]

## Quality statement 6 (developmental statement): electronic prescribing systems

Developmental quality statements set out an emergent area of cutting-edge service delivery or technology currently found in a minority of providers and indicating outstanding performance. They will need specific, significant changes to be put in place, such as redesign of services or new equipment.

### *Quality statement*

Prescribers in secondary and dental care use electronic prescribing systems that link indication with the antimicrobial prescription.

### *Rationale*

Although most GP practices already use electronic prescribing systems, many secondary care services (inpatient and outpatient) and dental care settings don't have access to this technology. Linking the indication with the antimicrobial prescription using electronic prescribing supports antimicrobial stewardship by highlighting inappropriate prescribing, and monitoring individual prescribing practice.

### *Quality measures*

#### **Structure**

Evidence of local arrangements to ensure that prescribers of antimicrobials in secondary care and dental care settings have access to electronic prescribing systems that link indication with the antimicrobial prescription.

*Data source:* Local data collection.

#### **Process**

a) Proportion of secondary care services using electronic prescribing systems that link the indication with the antimicrobial prescription.

Numerator – the number in the denominator using electronic prescribing systems that link the indication with the antimicrobial prescription.

Denominator – the number of secondary care services.

*Data source:* Local data collection.

b) Proportion of dental practices using electronic prescribing systems that link the indication with the antimicrobial prescription.

Numerator – the number in the denominator using electronic prescribing systems that link the indication with the antimicrobial prescription.

Denominator – the number of dental practices.

*Data source:* Local data collection.

## Outcome

Antimicrobial prescribing rates.

### *What the quality statement means for service providers, prescribers and commissioners*

**Service providers** (such as hospitals and dental practices) ensure that prescribers of antimicrobials have access to electronic prescribing systems that link indication with the antimicrobial prescription.

**Prescribers** use electronic prescribing systems that link indication with the antimicrobial prescription.

**Commissioners** (clinical commissioning groups, NHS England) ensure that they commission services with electronic prescribing systems that link indication with the antimicrobial prescription.

### *What the quality statement means for patients, people using services and carers*

**People** receive care from healthcare services that have electronic systems for prescribing. These systems support prescribing of antimicrobials according to diagnosis as well as local and national guidance on antimicrobial use.

## *Source guidance*

- [Antimicrobial stewardship \(2015\) NICE guideline NG15, recommendation 1.1.32](#)

## Using the quality standard

### *Quality measures*

The quality measures accompanying the quality statements aim to improve the structure, process and outcomes of care in areas identified as needing quality improvement. They are not a new set of targets or mandatory indicators for performance management.

We have indicated if current national indicators exist that could be used to measure the quality statements. These include indicators developed by the Health and Social Care Information Centre through its [Indicators for Quality Improvement Programme](#). If there is no national indicator that could be used to measure a quality statement, the quality measure should form the basis for audit criteria developed and used locally.

See NICE's [what makes up a NICE quality standard?](#) for further information, including advice on using quality measures.

### *Levels of achievement*

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, NICE recognises that this may not always be appropriate in practice, taking account of safety, choice and professional judgement, and therefore desired levels of achievement should be defined locally.

NICE's [quality standard service improvement template](#) helps providers to make an initial assessment of their service compared with a selection of quality statements. It includes assessing current practice, recording an action plan and monitoring quality improvement. This tool is updated monthly to include new quality standards.

### *Using other national guidance and policy documents*

Other national guidance and current policy documents have been referenced during the development of this quality standard. It is important that the quality standard is considered alongside the documents listed in [development sources](#).

## Diversity, equality and language

During the development of this quality standard, equality issues have been considered and [equality assessments](#) are available.

Good communication between health, public health and social care practitioners and people using antimicrobials, and their families or carers (if appropriate), is essential. Treatment, care and support, and the information given about antimicrobials, should be both age appropriate and culturally appropriate. It should also be accessible to people with additional needs such as physical, sensory or learning disabilities, and to people who do not speak or read English. People using antimicrobials and their families or carers (if appropriate) should have access to an interpreter or advocate if needed.

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.

## Development sources

Further explanation of the methodology used can be found in the quality standards [process guide](#).

## Evidence sources

The documents below contain recommendations from NICE guidance or other NICE-accredited recommendations that were used by the Quality Standards Advisory Committee to develop the quality standard statements and measures.

- [Antimicrobial stewardship \(2015\) NICE guideline NG15](#)
- [Respiratory tract infections \(self-limiting\): prescribing antibiotics \(2008\) NICE guideline CG69](#)

## Policy context

It is important that the quality standard is considered alongside current policy documents, including:

- Public Health England (2015) [English surveillance programme antimicrobial utilisation and resistance \(ESPAUR\) report](#)
- World Health Organization (2014) [Antimicrobial resistance: global report on surveillance 2014](#)
- Department of Health (2014) [UK 5 year antimicrobial resistance \(AMR\) strategy 2013 to 2018: annual progress report and implementation plan 2014](#)
- Department of Health (2013) [UK 5 Year Antimicrobial Resistance Strategy 2013 to 2018](#)
- Department of Health (2013) [Annual report of the Chief Medical Officer 2011: volume two](#)
- Department of Health and Public Health England (2013) [Antimicrobial prescribing and stewardship competencies](#)
- Department of Health (2013) [Advisory committee on antimicrobial resistance and healthcare associated infections: annual report](#)
- Public Health England (2011) [Antimicrobial stewardship: Start smart – then focus](#)
- Department of Health (2010) [The Health and Social Care Act 2008: code of practice on the prevention and control of infections and related guidance](#)



## Related NICE quality standards

### *Published*

- [Healthcare-associated infections](#) (2016) NICE quality standard 113
- [Pneumonia in adults](#) (2016) NICE quality standard 110
- [Urinary tract infections in adults](#) (2015) NICE quality standard 90
- [Antibiotics for neonatal infection](#) (2014) NICE quality standard 75
- [Feverish illness in children under 5 years](#) (2014) NICE quality standard 64
- [Infection prevention and control](#) (2014) NICE quality standard 61
- [Surgical site infection](#) (2013) NICE quality standard 49
- [Patient experience in adult NHS services](#) (2012) NICE quality standard 15
- [Chronic obstructive pulmonary disease in adults](#) (2011) NICE quality standard 10

### *Future quality standards*

This quality standard has been developed in the context of all quality standards referred to NICE, including the following topics scheduled for future development:

- Influenza
- Management of symptoms with an uncertain cause
- Medicines management in social care
- Medicines optimisation (covering medicines adherence and safe prescribing)
- Non-antibiotic clinical management of infectious diseases
- Norovirus
- Outbreak planning and control
- Sepsis
- Tuberculosis

The full list of quality standard topics referred to NICE is available from the [quality standards topic library](#) on the NICE website.

## Quality Standards Advisory Committee and NICE project team

This quality standard has been developed by Quality Standards Advisory Committee 3. Membership of this committee is as follows:

**Ms Deryn Bishop**

Public Health Behaviour Change Specialist, Solihull Public Health Department

**Jan Dawson**

Registered Dietitian

**Dr Matthew Fay**

GP, Westcliffe Medical Practice, Shipley, West Yorkshire

**Dr Malcolm Fisk**

Senior Research Fellow, Centre for Computing and Social Responsibility, De Montfort University, Leicester

**Mrs Margaret Goose**

Lay member

**Dr Madhavan Krishnaswamy**

Consultant Clinical Oncologist, Southend University Hospital NHS Trust

**Mrs Geeta Kumar**

Clinical Director, Women's Services (East) Betsi Cadwaladr University Health Board

**Dr Gita E Bhutani (Chair – prioritisation meeting)**

Professional Lead, Psychological Services, Lancashire Care NHS Foundation Trust

**Dr Hugh McIntyre (Chair)**

Consultant Physician, East Sussex Healthcare Trust

**Ms Ann Nevinson**

Lay member

**Professor Gillian Parker**

Professor of Social Policy Research, Social Policy Research Unit, University of York

**Mr David Pugh**

Independent Consultant, Gloucestershire County Council

**Dr Karen Ritchie**

Head of Knowledge and Information, Health Improvement Scotland

**Dr Eve Scott**

Head of Safety and Risk, The Christie NHS Foundation Trust, Manchester

**Dr Susannah Solaiman**

GP and Clinical Lead for Integrated Care, Harford Health Centre, Tower Hamlets Clinical Commissioning Group

**Dr Jim Stephenson**

Consultant Medical Microbiologist, Epsom and St Helier NHS Trust

**Mr Darryl Thompson**

Registered Nurse (Mental Health), South West Yorkshire Partnership NHS Foundation Trust

**Mrs Julia Thompson**

Health Improvement Principal, Sheffield City Council

The following specialist members joined the committee to develop this quality standard:

**Dr Chris Cefai**

Consultant Microbiologist, Public Health Wales, Wrexham

**Mrs Heather Edmonds**

Head of Medicines Optimisation, Leeds North Clinical Commissioning Group

**Ms Carole Fry**

Interim Infection Prevention and Control Lead, Public Health England, London

**Professor Alastair Hay**

GP and Professor of Primary Care, University of Bristol

**Dr Peter Jenks**

Consultant Microbiologist, Director of Infection Prevention and Control, Plymouth Hospitals NHS

Trust, Plymouth

**Dr Tessa Lewis**

GP and Medical Advisor in Therapeutics, Aneurin Bevan University Health Board

**Mr John Morris**

Lay member

**Mrs Wendy Thompson**

General Dental Practitioner, Lancashire and University of Leeds

### *NICE project team*

**Mark Minchin**

Associate Director

**Karen Slade**

Consultant Clinical Adviser

**Anna Wasielewska**

Lead Technical Analyst

**Esther Clifford**

Programme Manager

**Anneka Patel**

Project Manager

**Liane Marsh**

Coordinator

**Christina Barnes**

Coordinator

## 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.

The methods and processes for developing NICE quality standards are described in the [quality standards process guide](#).

This quality standard has been incorporated into the NICE pathway on [antimicrobial stewardship](#).

NICE produces guidance, standards and information on commissioning and providing high-quality healthcare, social care, and public health services. We have agreements to provide certain NICE services to Wales, Scotland and Northern Ireland. Decisions on how NICE guidance and other products apply in those countries are made by ministers in the Welsh government, Scottish government, and Northern Ireland Executive. NICE guidance or other products may include references to organisations or people responsible for commissioning or providing care that may be relevant only to England.

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### *Endorsing organisation*

This quality standard has been endorsed by Department of Health and Social Care, 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.

- [MRSA Action UK](#)
- [British Thoracic Society](#)
- [British Society for Antimicrobial Chemotherapy](#)
- [Royal College of General Practitioners](#)
- [Royal College of Nursing](#)
- [Royal College of Physicians](#)
- [Royal College of Paediatrics and Child Health](#)
- [Faculty of General Dental Practice](#)