Infection prevention and control

Quality standard

Published: 17 April 2014

www.nice.org.uk/guidance/qs61

Contents

This standard is based on CG69, CG139 and PH36.

This standard should be read in conjunction with QS49, QS14, QS15, QS72, QS90, QS63, QS66, QS89, QS110, QS113, QS121, QS141, QS161 and QS168.

Introduction

This quality standard covers the prevention and control of infection for people receiving healthcare in primary, community and secondary care settings.

Settings include hospitals, general practices, dental clinics, health centres, care homes, the person's own home, schools and prisons providing healthcare, and care delivered by the ambulance service and mental health services.

For more information see the topic overview.

Why this quality standard is needed

Healthcare-associated infections can develop either as a direct result of healthcare intervention (such as medical or surgical treatment) or from being in contact with a healthcare setting[1].

Healthcare-associated infections arise across a wide range of clinical conditions and can affect people of all ages. They can exacerbate existing or underlying conditions, delay recovery and adversely affect quality of life. Healthcare-associated infections can occur in otherwise healthy people, especially if invasive procedures or devices are used. Healthcare workers, family members and carers are also at risk of acquiring infections when caring for people. A number of factors can increase the risk of acquiring an infection, but high standards of infection prevention and control practice, including providing clean environments, can minimise the risk.

It is estimated that 300,000 patients a year in England acquire a healthcare-associated infection as a result of care within the NHS. The prevalence of healthcare-associated infections in hospitals in England in 2011 was 6.4%. The most common types of healthcare-associated infection are respiratory infections (including pneumonia and infections of the lower respiratory tract; 22.8%), urinary tract infections (17.2%) and surgical site infections (15.7%)[2]. Each one of these infections means additional use of NHS resources, greater patient discomfort and a decrease in patient safety[3].

In 2007, methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections and *Clostridium difficile* infections were recorded as the underlying cause of, or a contributory factor in, approximately 9,000 deaths in hospital and primary care in England[3]. Since 2006 there has been an 18-fold reduction in MRSA bloodstream infections (from 1.3% to less than 0.1%) and a 5-fold reduction in *Clostridium difficile* infections (from 2% to 0.4%)[2].

It is important that this quality standard is implemented alongside other national guidance, current policy documents and regulatory standards listed in policy context.

This quality standard has been developed as part of a group of topics on infection prevention and control across a range of settings. The infection prevention and control quality standard is an overarching quality standard; other quality standards and guidance have been published (for example, NICE's quality standard on surgical site infection), are in development and have been referred to NICE that provide topic-specific detail on aspects of infection prevention and control.

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

- infection rates

- avoidable deaths from healthcare-associated infections.

How this quality standard supports delivery of outcome frameworks

NICE quality standards are a concise set of prioritised statements designed to drive measurable quality improvements within 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 outcomes framework published by the Department of Health:

- NHS Outcomes Framework 2014 to 2015

Table 1 shows the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

Table 1 NHS Outcomes Framework 2014 to 2015

Domain	Overarching indicators and improvement areas

1 Preventing people from dying prematurely	*Overarching indicator*
	1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare
	1ai Adults
	1aii Children and young people
4 Ensuring that people have a positive experience of care	*Overarching indicator*
	4a Patient experience of primary care i GP services
	4b Patient experience of hospital care
5 Treating and caring for people in a safe environment and protect them from avoidable harm	*Improvement areas*
	Reducing the incidence of avoidable harm
	5.2 Incidence of healthcare associated infection (HCAI)
	5.2i MRSA
	5.2ii *C. difficile*

Coordinated services

The quality standard for infection prevention and control specifies that services should be commissioned from and coordinated across all relevant agencies. A person-centred, integrated approach that promotes multi-agency working is fundamental to delivering high-quality care and preventing and controlling infection.

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. Other quality standards that should also be considered when choosing, commissioning or providing a high-quality infection prevention and control service 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 healthcare workers and social care and public health practitioners involved in infection prevention and control should have sufficient and appropriate training and competencies

to deliver the actions and interventions described in the quality standard.

Role of families and carers

Quality standards recognise the important role families and carers have in infection prevention and control. If appropriate, healthcare workers and social care and public health practitioners should ensure that family members and carers are involved in the decision-making process about investigations, treatment and care.

---

[1] Public Health England (2014) Healthcare associated infections.

[2] NHS England (2011) English national point prevalence survey on healthcare-associated infections and antimicrobial use, 2011: preliminary data.

[3] National Audit Office (2009) Reducing healthcare associated infections in hospitals in England.

List of quality statements

Statement 1 People are prescribed antibiotics in accordance with local antibiotic formularies as part of antimicrobial stewardship.

Statement 2 Organisations that provide healthcare have a strategy for continuous improvement in infection prevention and control, including accountable leadership, multi-agency working and the use of surveillance systems.

Statement 3 People receive healthcare from healthcare workers who decontaminate their hands immediately before and after every episode of direct contact or care.

Statement 4 People who need a urinary catheter have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.

Statement 5 People who need a vascular access device have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the device and its removal as soon as it is no longer needed.

Statement 6 People with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), are educated about the safe management of the device or equipment, including techniques to prevent infection.

Quality statement 1: Antimicrobial stewardship

Quality statement

People are prescribed antibiotics in accordance with local antibiotic formularies as part of antimicrobial stewardship.

Rationale

Antibiotic resistance poses a significant threat to public health, particularly because antibiotics underpin routine medical practice in both primary and secondary care. To help prevent the development of current and future bacterial resistance, it is important to prescribe antibiotics according to the principles of antimicrobial stewardship, such as prescribing antibiotics only when they are needed (and not for self-limiting mild infections such as colds and most coughs, sinusitis, earache and sore throats) and reviewing the continued need for them. These principles should be set out within local antibiotic guidelines and pathways and be consistent with the local antibiotic formulary. Local antibiotic formularies should indicate a range of antibiotics for managing common infections, and permit use of other antibiotics only on the advice of the microbiologist or physician responsible for the control of infectious diseases.

Quality measures

Structure

a) Evidence of local antibiotic formularies governing the use of antibiotics to ensure that people are prescribed antibiotics appropriately.

Data source: Local data collection.

b) Evidence that local antibiotic formularies are reviewed regularly.

Data source: Local data collection.

c) Evidence of local audits of the appropriateness of antibiotic prescribing.

Data source: Local data collection.

Outcome

Antibiotic prescribing rates (primary and secondary care).

Data source for primary care: National prescribing comparator data available from the NHS Digital [Information Services Portal](), specifically the number of prescription items for antibacterial drugs per Specific Therapeutic Group Age-sex weightings Related Prescribing Unit (STAR-PU), and the number of prescription items for cephalosporins and quinolones as a percentage of the total number of prescription items for selected antibacterial drugs ([British National Formulary [BNF]]()).

Data source for secondary care: Local data collection.

What the quality statement means for different audiences

Service providers ensure that they have antimicrobial stewardship initiatives in place, including local antibiotic formularies for antibiotic prescribing.

Healthcare professionals ensure that when they prescribe antibiotics they do so in accordance with local antibiotic formularies as part of antimicrobial stewardship.

Commissioners ensure that they commission services that have antimicrobial stewardship initiatives and in which people are prescribed antibiotics in accordance with local antibiotic formularies.

People are offered antibiotics according to local guidance about which ones are most suitable. This includes not being offered antibiotics if they don't need them (for example, if they have a cold, a sore throat, most coughs or earache). This is to try to reduce the problem of antibiotic resistance, which is when an infection no longer responds to treatment with one or more types of antibiotic and so is more likely to spread and can become serious.

Source guidance

- [Respiratory tract infections (self-limiting): prescribing antibiotics]() (2008) NICE guideline CG69, recommendations 1.3 and 1.4

- Expert consensus

Definitions of terms used in this quality statement

Local antibiotic formulary

A local antibiotic formulary is a local policy document produced by a multi-professional team, usually in a hospital trust or commissioning group, combining best evidence and clinical judgement.

[NICE's guideline on surgical site infections, full guideline 2008, glossary]

A local antibiotic formulary is defined as 'the output of processes to support the managed introduction, utilisation or withdrawal of healthcare treatments within a health economy, service or organisation.

[NICE's guideline on developing and updating local formularies]

Local policies often limit the antibiotics that may be used to achieve reasonable economy consistent with adequate cover, and to reduce the development of resistant organisms. A policy may indicate a range of antibiotics for general use, and permit other antibiotics only on the advice of the medical microbiologist or physician responsible for the control of infectious diseases.

[BNF Antibacterials, principles of therapy]

Antimicrobial stewardship

Antimicrobial stewardship is an organisational or healthcare-system-wide approach to promoting and monitoring judicious use of antimicrobial drugs to preserve their future effectiveness.

[Adapted from the Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI)'s antimicrobial prescribing and stewardship competencies]

The approach to prescribing in line with the principles of antimicrobial stewardship recommended for secondary care is as follows:

- Do not start antibiotics without clinical evidence of bacterial infection.

- If there is evidence or suspicion of bacterial infection, use local guidelines to start prompt, effective antibiotic treatment.

- Document the following on the medicines chart and in the person's medical notes: clinical indication, duration or review date, route and dose.

- Obtain cultures – knowing the susceptibility of an infecting organism can lead to narrowing of broad-spectrum therapy, changing therapy to effectively treat resistant pathogens, and stopping antibiotics when cultures suggest an infection is unlikely.

- Prescribe single-dose antibiotics for surgical prophylaxis if antibiotics have been shown to be effective.

- Review the clinical diagnosis and the continuing need for antibiotics by 48 hours from the first antibiotic dose and make a clear plan of action – the 'Antimicrobial Prescribing Decision'. The 5 Antimicrobial Prescribing Decision options are: Stop, Switch Intravenous to Oral, Change, Continue, and Outpatient Parenteral Antibiotic Therapy (OPAT).

- Clearly document the review and subsequent decision in the person's medical notes.

[ARHAI's guidance on antimicrobial stewardship: Start smart – then focus]

The approach to prescribing in line with the principles of antimicrobial stewardship recommended for primary care is as follows:

- Prescribe an antibiotic only if there is likely to be a clear clinical benefit.

- Consider a no, or delayed, antibiotic strategy for acute self-limiting upper respiratory tract infections.

- Limit prescribing over the phone to exceptional cases.

- Use simple generic antibiotics if possible. Avoid broad-spectrum antibiotics (for example, co-amoxiclav, quinolones and cephalosporins) if narrow-spectrum antibiotics remain effective, because the former increase the risk of *Clostridium difficile*, methicillin-resistant *Staphylococcus aureus* (MRSA) and antibiotic-resistant urinary tract infections.

- Avoid widespread use of topical antibiotics (especially those that are also available as systemic preparations, such as fusidic acid).

[Adapted from Public Health England's management of infection guidance for primary care]

Quality statement 2: Organisational responsibility

Quality statement

Organisations that provide healthcare have a strategy for continuous improvement in infection prevention and control, including accountable leadership, multi-agency working and the use of surveillance systems.

Rationale

It is essential that organisations and agencies work together to coordinate strategies for infection prevention and control across a local area. It is equally important to share information across organisations in order to meet responsibilities for establishing the current position on infection control, monitoring the impact of quality improvement initiatives and ongoing surveillance. Leadership underpins all infection prevention and control, and is vital to ensure that this remains a priority for the organisation as a whole and each person working within it.

Quality measures

Structure

a) Evidence that the organisation includes infection prevention and control within its overall strategy.

Data source: Local data collection.

b) Evidence that the organisation's board is up to date with, and has a working knowledge and understanding of, infection prevention and control.

Data source: Local data collection.

c) Evidence that a lead for infection prevention and control has been assigned and is taking an active role.

Data source: Local data collection.

d) Evidence of support for, and participation in, joint working initiatives beyond mandatory or contractual requirements, to reduce healthcare-associated infections locally.

Data source: Local data collection.

e) Evidence of an adequately resourced surveillance system with specific, locally defined objectives and priorities for preventing and managing healthcare-associated infections.

Data source: Local data collection.

Outcome

Incidence of healthcare-associated infection.

Data source: 2014/15 NHS Outcomes Framework indicator 5.2 and 2014/15 CCG Outcomes Indicator Set indicators 5.3 and 5.4 measure incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*. Data are derived from the mandatory reporting of healthcare-associated infections to Public Health England, which are published by Public Health England and also reported by NHS Digital through the National Indicator Library.

What the quality statement means for different audiences

Service providers ensure that a strategy is in place for continuous improvement in infection prevention and control that includes accountable leadership, multi-agency working and surveillance systems.

Healthcare professionals ensure that they implement strategies for continuous improvement in infection prevention and control through accountable leadership, multi-agency working and adhering to the requirements of surveillance systems.

Commissioners ensure that they commission services from organisations that have strategies for continuous improvement in infection prevention and control that include accountable leadership, multi-agency working and surveillance systems.

People receive healthcare from organisations that aim to continually improve their approach to preventing infection (for example, by sharing information with other organisations and monitoring rates of infection).

Source guidance

Healthcare-associated infections: prevention and control (2011) NICE guideline PH36, quality

improvement statements 1, 3 and 6

Definitions of terms used in this quality statement

Board

A board is defined as a group of members with overall responsibility and accountability for the governance, safety and quality of an organisation.

[Expert opinion]

Quality statement 3: Hand decontamination

Quality statement

People receive healthcare from healthcare workers who decontaminate their hands immediately before and after every episode of direct contact or care.

Rationale

Effective hand decontamination, even after wearing gloves, results in significant reductions in the carriage of potential pathogens on the hands and decreases the incidence of preventable healthcare-associated infections, leading in turn to a reduction in morbidity and mortality. Hand decontamination is considered to have a high impact on outcomes that are important to patients. Although hand hygiene has improved over recent years, remaining misconceptions about this standard principle of infection control are reported and good practice is still not universal.

Quality measures

Structure

a) Evidence of local arrangements to ensure the availability of facilities for hand decontamination.

Data source: Local data collection.

b) Evidence of local arrangements to ensure that all healthcare workers receive training in hand decontamination.

Data source: Local data collection.

c) Evidence of local arrangements to ensure that regular local hand hygiene observation audits are undertaken.

Data source: Local data collection.

Outcome

Incidence of healthcare-associated infection.

Data source: 2014/15 NHS Outcomes Framework indicator 5.2.

What the quality statement means for different audiences

Service providers ensure that healthcare workers are trained in effective hand decontamination techniques, and that handrub and handwashing facilities are available so that healthcare workers can decontaminate their hands immediately before and after every episode of direct contact or care.

Healthcare workers ensure that they are trained in effective hand decontamination techniques, and that they decontaminate their hands immediately before and after every episode of direct contact or care, even when gloves have been worn.

Commissioners ensure that they commission services in which healthcare workers are trained in effective hand decontamination techniques and decontaminate their hands immediately before and after every episode of direct contact or care, and that hand hygiene observation audits are carried out regularly.

People receiving healthcare are looked after by healthcare workers who always clean their hands thoroughly (using handrub or soap and water), both immediately before and immediately after coming into contact with the person or carrying out care.

Source guidance

- Healthcare-associated infections: prevention and control in primary and community care (2012, updated 2017) NICE guideline CG139, recommendation 1.1.2.1 (key priority for implementation)

- Loveday HP, Wilson JA, Pratt RJ et al. (2014) epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, recommendation SP6

Definitions of terms used in this quality statement

Hand decontamination

Hand decontamination is the use of handrub or handwashing to reduce the number of bacteria on the hands. The term is often interchangeable with 'hand hygiene'.

An alcohol-based handrub should be used for hand decontamination before and after direct contact or care, except in the following situations when soap and water must be used:

- when hands are visibly soiled or potentially contaminated with body fluids **or**

- when caring for patients with vomiting or diarrhoeal illness, regardless of whether or not gloves have been worn.

[Adapted from NICE's guideline on healthcare-associated infections, recommendation 1.1.2.2, and epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, recommendation SP7]

Direct contact or care

Direct contact or care refers to 'hands on' or face-to-face contact with patients. This encompasses any physical aspect of the healthcare of a patient, including treatments, self-care and administration of medication.

[NICE's guideline on healthcare-associated infections]

Quality statement 4: Urinary catheters

Quality statement

People who need a urinary catheter have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.

Rationale

Catheter-associated urinary tract infections comprise a large proportion of healthcare-associated infections, and can occur whether a person has either a short-term or a long-term catheter. There is a strong association between duration of urinary catheterisation and risk of infection, and catheters are sometimes inserted inappropriately or there is a delay in removing them. This risk is greatly reduced by complying with all parts of the process for safe catheter insertion, maintenance and removal as soon as it is no longer needed. This is important in terms of both infection prevention and patient comfort and experience.

Quality measures

Structure

Evidence of a written protocol to ensure that people who need a urinary catheter have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.

Data source: Local data collection.

Process

a) Proportion of people with a short-term urinary catheter who had their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.

Numerator – the number of people in the denominator for whom all of the specified procedures were completed for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.

Denominator – the number of people who have had a short-term urinary catheter.

Data source: Local data collection.

b) Proportion of people with a long-term urinary catheter who had their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed.

Numerator – the number of people in the denominator for whom all of the specified procedures were completed for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed were completed.

Denominator – the number of people who have had a long-term urinary catheter.

Data source: Local data collection.

Outcome

a) Incidence of healthcare-associated infection.

Data source: 2014/15 NHS Outcomes Framework indicator 5.2 and 2014/15 CCG Outcomes Indicator Set indicators 5.3 and 5.4 measure incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*. Data are derived from the mandatory reporting of healthcare-associated infections to Public Health England, which are published by Public Health England and also reported by NHS Digital through the National Indicator Library.

b) Incidence of catheter-associated urinary tract infection.

Data source: Local data collection. NHS Digital NHS safety thermometer.

What the quality statement means for different audiences

Service providers ensure that systems and facilities are in place to enable staff to complete specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed, in order to minimise the risk of infection.

Healthcare workers ensure that they complete specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed, in order to minimise the risk of infection.

Commissioners ensure that they commission services in which specified procedures necessary for the safe insertion and maintenance of the catheter and its removal as soon as it is no longer needed are completed, in order to minimise the risk of infection.

People who need a urinary catheter have their risk of infection minimised by healthcare workers carrying out procedures to make sure that the catheter is inserted, looked after and removed correctly and safely. These procedures include things like cleaning hands, using a lubricant when inserting the catheter, emptying the drainage bag when necessary, and removing the catheter as soon as it is no longer needed. A urinary catheter is a thin flexible tube used to drain urine from the bladder.

Source guidance

- Healthcare-associated infections: prevention and control in primary and community care (2012, updated 2017) NICE guideline CG139, recommendations 1.2.2.1–1.2.2.3, 1.2.4.3, 1.2.4.4, 1.2.5.1–1.2.5.3, 1.2.5.5, 1.2.5.6, 1.2.5.8 and 1.2.5.9

- Loveday HP, Wilson JA, Pratt RJ et al. (2014) epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, recommendations UC1–UC3, UC8–UC11, UC13–UC17 and UC19

Definitions of terms used in this quality statement

Urinary catheter

A urinary catheter is a catheter that is inserted in the urethra and remains in place until it is no longer needed. Both short-term (used for 28 days or less) and long-term (used for more than 28 days) urinary catheters are used.

[Adapted from NICE's guideline on healthcare-associated infections, full guideline and epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England]

Specified procedures necessary for the safe insertion, maintenance and appropriate removal of urinary catheters

Assessing the need for catheterisation

- Catheterisation should be used only after considering alternative methods of management. The person's clinical need for catheterisation should be reviewed regularly and the urinary

- catheter removed as soon as possible. The need for catheterisation, as well as details about insertion, changes and care should be documented.

Hand hygiene

- Healthcare workers must decontaminate their hands and wear a new pair of clean, non-sterile gloves before manipulating a person's catheter, and must decontaminate their hands after removing gloves.

Catheter insertion

- The meatus should be cleaned before the catheter is inserted, in accordance with local guidelines or policy (for example, with sterile normal saline).

- An appropriate lubricant from a single-use container should be used during catheter insertion to minimise urethral trauma and infection.

Catheter maintenance

- Indwelling catheters should be connected to a sterile closed urinary drainage system or catheter valve. Healthcare workers should ensure that the connection between the catheter and the urinary drainage system is not broken, except for good clinical reasons (for example, changing the bag in line with the manufacturer's recommendations).

- Urinary drainage bags should be positioned below the level of the bladder, and should not be in contact with the floor. The urinary drainage bag should be emptied frequently enough to maintain urine flow and prevent reflux, and should be changed when clinically indicated. A separate and clean container should be used for each person. Contact between the urinary drainage tap and container should be avoided.

- Urine samples must be obtained from a sampling port using an aseptic technique.

- The meatus should be washed daily with soap and water as part of routine daily personal hygiene.

[Adapted from NICE's guideline on healthcare-associated infections and epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England]

Quality statement 5: Vascular access devices

Quality statement

People who need a vascular access device have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the device and its removal as soon as it is no longer needed.

Rationale

Vascular access devices are one of the main causes of healthcare-associated infections, and bloodstream infections associated with central venous device insertion are a major cause of morbidity. The risk of infection is greatly reduced by complying with all parts of the process for safe insertion and maintenance of the device and its removal as soon as it is no longer needed.

Quality measures

Structure

Evidence of a written protocol to ensure that people who need a vascular access device have their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the device and its removal as soon as it is no longer needed.

Data source: Local data collection.

Process

Proportion of people with a vascular access device who had their risk of infection minimised by the completion of specified procedures necessary for the safe insertion and maintenance of the device and its removal as soon as it is no longer needed.

Numerator – the number of people in the denominator for whom all of the specified procedures were completed for the safe insertion and maintenance of the device and its removal as soon as it is no longer needed.

Denominator – the number of people who have had a vascular access device.

Data source: Local data collection. Contained in the UK Renal Registry Annual Report.

Outcome

Incidence of vascular access device-related bloodstream infection.

*Data source:*Local data collection.

What the quality statement means for different audiences

Service providers ensure that systems and facilities are in place to enable staff to complete specified procedures necessary for the safe insertion and maintenance of the vascular access device and its removal as soon as it is no longer needed, in order to minimise risk of infection.

Healthcare workers ensure that they complete specified procedures necessary for the safe insertion and maintenance of the vascular access device and its removal as soon as it is no longer needed, in order to minimise the risk of infection.

Commissioners ensure that they commission services in which specified procedures necessary for the safe insertion and maintenance of the vascular access device and its removal as soon as it is no longer needed are completed, in order to minimise the risk of infection.

People who need **a vascular access device** have their risk of infection minimised by healthcare workers carrying out procedures to make sure that the device is inserted, looked after and removed correctly and safely. These procedures include things like using sterile procedures when inserting the device, using the correct antiseptics and dressings, and removing the device as soon as it is no longer needed. A vascular access device is a tube that is inserted into a main vein or artery and used to administer fluids and medication, monitor blood pressure and collect blood samples.

Source guidance

- Healthcare-associated infections: prevention and control in primary and community care (2012, updated 2017) NICE guideline CG139, recommendations 1.4.2.1, 1.4.2.2, 1.4.3.1 (key priority for implementation), 1.4.3.2, 1.4.4.1, 1.4.4.6, 1.4.4.12–1.4.4.14

- Loveday HP, Wilson JA, Pratt RJ et al. (2014) epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, recommendations IVAD4–IVAD5, IVAD13–IVAD15, IVAD17, IVAD23–IVAD24, IVAD30, IVAD34, IVAD37–IVAD39

Definitions of terms used in this quality statement

Vascular access device

A vascular access device is an indwelling catheter, cannula or other instrument used to obtain venous or arterial access. Both central and peripheral vascular access devices are available.

Specified procedures necessary for the safe insertion, maintenance and appropriate removal of vascular access devices

General asepsis

- Healthcare workers must decontaminate their hands before accessing or dressing a vascular access device, using an alcohol handrub or by washing with liquid soap and water if hands are contaminated. An aseptic technique must be used for vascular access device catheter site care, when accessing the system and when administrating intravenous medication.

Skin decontamination

- The skin should be decontaminated at the insertion site with 2% chlorhexidine gluconate in 70% alcohol and allowed to dry before inserting a vascular access device.

Vascular access device site care

- A sterile transparent semipermeable membrane dressing should be used to cover the vascular access device insertion site. This should be changed every 7 days, or sooner if it is no longer intact or if moisture collects under the dressing.

- A single-use application of 2% chlorhexidine gluconate in 70% alcohol (or aqueous povidone iodine) should be used and allowed to dry when cleaning the insertion site during dressing changes.

Vascular access device management

- A single-use application of 2% chlorhexidine gluconate in 70% alcohol (or aqueous povidone iodine) should be used to decontaminate the access port or catheter hub. The hub should be cleaned for 15 seconds and allowed to dry before accessing the system.

- Preferably, a sterile 0.9% sodium chloride injection should be used to flush and lock catheter lumens.

- Administration sets for blood and blood components should be changed when the transfusion

- episode is complete or every 12 hours (whichever is sooner), or according to the manufacturer's recommendations. Administration sets used for total parenteral nutrition infusions should generally be changed every 24 hours. If the solution contains only glucose and amino acids, administration sets in continuous use do not need to be replaced more frequently than every 72 hours.

Review of vascular access devices

- Peripheral vascular catheter insertion sites should be inspected during every shift at a minimum, and a visual phlebitis score should be recorded.

- Central venous catheter insertion sites should be inspected daily.

[Adapted from NICE's guideline on healthcare-associated infections and epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England]

Quality statement 6: Educating people about infection prevention and control

Quality statement

People with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), are educated about the safe management of the device or equipment, including techniques to prevent infection.

Rationale

Because many people with a urinary catheter, vascular access device or enteral feeding tube manage their own device or equipment, it is important that they and their family members or carers are confident about, and proficient in, infection prevention and control practices and the safe management of the device or equipment.

Quality measures

Structure

Evidence of local arrangements for people with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), to be educated about the safe management of their device or equipment, including techniques to prevent infection.

Data source: Local data collection.

Process

Proportion of people with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), who are educated about the safe management of their device or equipment, including techniques to prevent infection.

Numerator – the number of people in the denominator who are educated about the safe management of their device or equipment, including techniques to prevent infection.

Denominator – the number of people with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate).

Data source: Local data collection.

Outcome

a) Incidence of healthcare-associated infection.

Data source: [2014/15 NHS Outcomes Framework](#) indicator 5.2 and [2014/15 CCG Outcomes Indicator Set](#) indicators 5.3 and 5.4 measure incidence of methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile*. Data are derived from the [mandatory reporting of healthcare-associated infections](#) to [Public Health England](#), which are published by Public Health England and also reported by NHS Digital through the [National Indicator Library](#).

b) People with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), feel able to manage their device or equipment.

Data source: Local data collection using a patient survey to demonstrate that patients and carers have understood their education.

What the quality statement means for different audiences

Service providers ensure that there are systems in place for people with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), to be educated about the safe management of the device or equipment, including techniques to prevent infection.

Healthcare workers ensure that they educate people with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), about the safe management of the device or equipment, including techniques to prevent infection.

Commissioners ensure that they commission services in which people with a urinary catheter, vascular access device or enteral feeding tube, and their family members or carers (as appropriate), are educated about the safe management of the device or equipment, including techniques to prevent infection.

People who have a urinary catheter, a vascular access device or an enteral feeding tube, and any family members or carers who help them with this equipment, are given information and advice about how to look after the equipment safely and effectively. This includes advice about how to prevent infection. Enteral feeding is a type of feeding used for people who cannot eat normally in

which liquid food is given through a tube directly into the gut.

Source guidance

- [Healthcare-associated infections: prevention and control in primary and community care](#) (2012, updated 2017) NICE guideline CG139, recommendations 1.2.1.1, 1.3.1.1 and 1.4.1.1 (key priority for implementation)

- Loveday HP, Wilson JA, Pratt RJ et al. (2014) [epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England](#), recommendations UC22 and IVAD3

Definitions of terms used in this quality statement

Urinary catheter

A urinary catheter is a catheter that is inserted in the urethra and remains in place until it is no longer needed. Both short-term (used for 28 days or less) and long-term (used for more than 28 days) urinary catheters are used.

[Adapted from NICE's guideline on healthcare-associated infections, [full guideline](#) and [epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England](#)]

Vascular access device

A vascular access device is an indwelling catheter, cannula or other instrument used to obtain venous or arterial access. Both central and peripheral vascular access devices are available.

Enteral feeding

Enteral feeding is feeding via a tube that can include any method of providing nutrition via the gastrointestinal tract.

[NICE's guideline on healthcare-associated infections, [full guideline](#)]

Education about infection prevention and control

Education for people and their carers about infection prevention and control should always cover the techniques of hand decontamination. In addition education should be provided as follows:

For people with a urinary catheter, education should cover insertion of intermittent catheters where applicable, how to manage the catheter and drainage system, how to minimise the risk of urinary tract infections and how to obtain additional supplies suitable for individual needs.

[NICE's guideline on healthcare-associated infections, recommendation 1.2.1.1, and epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, recommendation UC22]

For people with a vascular access device, education should cover any technique needed to prevent infection and safely manage the device.

[NICE's guideline on healthcare-associated infections, recommendation 1.4.1.1, and epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England, recommendation IVAD3]

For people needing enteral feeding, education should cover techniques of feeding and management of the administration system.

[NICE's guideline on healthcare-associated infections, recommendation 1.3.1.1]

Equality and diversity considerations

People with a cognitive impairment or a lack of mobility may need additional support to undertake hand decontamination and other techniques to prevent infection. Language barriers should not be a reason for not providing advice.

If religious beliefs are a source of concern in relation to the use of alcohol handrubs for hand decontamination, people could be made aware of the official views of religious bodies about the products. If information is available, people should be directed to these sources.

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.

See NICE's how to use quality standards 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.

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 healthcare workers and social care and public health practitioners is essential. Treatment, care and support, and the information given about it, should be 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 receiving healthcare 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 on the NICE website.

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.

- Loveday HP, Wilson JA, Pratt RJ et al. (2014) epic3: National evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. Journal of Hospital Infection 86 (supplement 1): S1–70

- Healthcare-associated infections: prevention and control in primary and community care (2012, updated 2017) NICE guideline CG139

- Healthcare-associated infections: prevention and control (2011) NICE guideline PH36

- 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:

- Department of Health (2013) UK five year antimicrobial resistance strategy 2013 to 2018

- Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI; 2011) Antimicrobial stewardship: Start smart – then focus

- Care Quality Commission (2010) Essential standards of quality and safety

- Department of Health (2010) High impact intervention: central venous catheter care bundle

- Department of Health (2010) High impact intervention: urinary catheter care bundle

- Department of Health (2010) The Health and Social Care Act 2008: code of practice on the prevention and control of infections and related guidance

- National Audit Office (2009) Reducing healthcare associated infections in hospitals in England

Definitions and data sources for the quality measures

- British National Formulary (BNF; 2014) Antibacterials, principles of therapy

- Developing and updating local formularies (2014) NICE guideline MPG1

- Department of Health (2013) 2014/15 NHS Outcomes Framework

- Department of Health (2013) 2014/15 Clinical Commissioning Group (CCG) Outcomes Indicator Set

- NHS Digital (2013) NHS safety thermometer

- NHS Digital (2013) Information Services Portal

- Public Health England (2013) Management of infection guidance for primary care

- Public Health England and Department of Health Expert Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI; 2013) Antimicrobial prescribing and stewardship competencies

- Department of Health Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI; 2011) Antimicrobial stewardship: Start smart – then focus

Related NICE quality standards

This quality standard has been developed in the context of all quality standards developed by NICE.

- Surgical site infection (2013) NICE quality standard 49

- Patient experience in adult NHS services (2012) NICE quality standard 15

- Service user experience in adult mental health (2011) NICE quality standard 14

Quality Standards Advisory Committee and NICE project team

Quality Standards Advisory Committee

This quality standard has been developed by Quality Standards Advisory Committee 3.

Membership of this committee is as follows:

Dr Hugh McIntyre (Chair)
Consultant physician, East Sussex Healthcare Trust

Mrs Alison Raw (Acting Chair at prioritisation meeting)
Head of integrated health and care, Lewisham

Dr Jim Stephenson (Vice Chair)
Consultant medical microbiologist, Epsom and St Helier NHS Trust

Dr Alastair Bradley
General medical practitioner, Tramways Medical Centre/Academic Unit of Primary Medical Care, University of Sheffield

Ms Jan Dawson
Public health nutrition lead and registered dietician, Manchester City Council

Dr Matthew Fay
General practitioner, Westcliffe Medical Practice, Shipley, West Yorkshire

Dr Malcolm Fisk
Co-director, Ageing Society Grand Challenge Initiative, Coventry University

Mrs Margaret Goose
Lay member

Mrs Geeta Kumar
Clinical director, Women's Services (East), Betsi Cadwaladr University Health Board

Mrs Rhian Last
Clinical lead, Education for Health

Mrs Mandy Nagra

CDF/ IFR manager specialised commissioning, NHS England

Ms Ann Nevinson

Lay member

Dr Jane O'Grady

Director of public health, Buckinghamshire County Council

Mrs Jane Orr-Campbell

Director, Orr-Campbell Consultancy

Professor Gillian Parker

Professor of social policy research and director, Social Policy Research Unit, University of York

Mr David Pugh

Independent consultant (MCA), Gloucestershire County Council

Dr Eve Scott

Head of safety and risk, Christie NHS Foundation Trust

Mr Darryl Thompson

Psychosocial interventions development lead, South West Yorkshire Partnership NHS Foundation Trust

Mrs Julia Thompson

Strategic commissioning manager, Sheffield City Council

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

Dr Robert Carr

Consultant in communicable disease control, Public Health England

Dr Peter Jenks

Director of infection prevention and control, Plymouth Hospitals NHS Trust

Mr Gavin Maxwell

Lay member

Dr Carol Pellowe

Senior lecturer, King's College London

Mrs Sue Wright

Infection prevention and control lead, Peninsula Community Health, Cornwall

NICE project team

Dylan Jones

Associate director

Shirley Crawshaw

Consultant clinical adviser

Rachel Neary-Jones

Programme manager

Terence Lacey

Technical adviser

Anna Brett

Lead technical analyst (until December 2013)

Nicola Greenway

Lead technical analyst (from December 2013)

Esther Clifford

Project manager

Lee Berry

Coordinator

Update information

Minor changes since publication

April 2019: References and source guidance sections have been updated throughout to align this quality standard with updated NICE guidance.

December 2016: Data source updated for statement 5.

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 Pathways on prevention and control of healthcare-associated infections and self-limiting respiratory tract and ear infections – antibiotic prescribing.

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.

ISBN: 978-1-4731-0540-9

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.

- [Independent Healthcare Advisory Services](#)
- [MRSA Action UK](#)
- [Royal College of Anaesthetists](#)
- [Royal College of General Practitioners (RCGP)](#)
- [Royal College of Nursing (RCN)](#)
- [Royal College of Pathologists](#)
- [Royal College of Physicians (RCP)](#)
- [Royal Pharmaceutical Society](#)
- [UK Clinical Pharmacy Association (UKCPA)](#)
- [Association of Physicians' Assistants (Anaesthesia)](#)
- [Association for Safe Aseptic Practice](#)
- [Healthcare Infection Society](#)
- [Infection Prevention Society](#)
- [St John Ambulance](#)
- [Faculty of General Dental Practice](#)