**Guidelines for preventing infections associated with the use of intravascular access devices**

This guidance is based on the best critically appraised evidence currently available. The type and class of supporting evidence explicitly linked to each recommendation is described. Some recommendations from the previous guidelines have been revised to improve clarity; where a new recommendation has been made, this is indicated in the text. These recommendations are not detailed procedural protocols, and need to be incorporated into local guidelines. None are regarded as optional.

**Education of healthcare workers and patients**

**IVAD1** Healthcare workers caring for patients with intravascular catheters should be trained and assessed as competent in using and consistently adhering to practices for the prevention of catheter-related bloodstream infection.
*Class D/GPP*

**IVAD2** Healthcare workers should be aware of the manufacturer’s advice relating to individual catheters, connection and administration set dwell time, and compatibility with antiseptics and other fluids to ensure the safe use of devices.
*New recommendation Class D/GPP*

**IVAD3** Before discharge from hospital, patients with intravascular catheters and their carers should be taught any techniques they may need to use to prevent infection and manage their device.
*Class D/GPP*

**General asepsis**

**IVAD4** Hands must be decontaminated, with an alcohol-based hand rub or by washing with liquid soap and water if soiled or potentially contaminated with blood or body fluids, before and after any contact with the intravascular catheter or insertion site.
*Class A*

**IVAD5** Use the aseptic technique for the insertion and care of an intravascular access device and when administering intravenous medication.
*Class B*

**Selection of catheter type**

**IVAD6** Use a catheter with the minimum number of ports or lumens essential for management of the patient.
*Class A*

**IVAD7** Preferably use a designated single-lumen catheter to administer lipid-containing parenteral nutrition or other lipid-based solutions.
*Class D/GPP*

**IVAD8** Use a tunnelled or implanted central venous access device with a subcutaneous port for patients in whom long-term vascular access is required.
*Class A*

**IVAD9** Use a peripherally inserted central catheter for patients in whom medium-term intermittent access is required.
*New recommendation Class D/GPP*

**IVAD10** Use an antimicrobial-impregnated central venous access device for adult patients whose central venous catheter is expected to remain in place for >5 days if catheter-related bloodstream infection rates remain above the locally agreed benchmark, despite the implementation of a comprehensive strategy to reduce catheter-related bloodstream infection.
*Class A*

**Selection of catheter insertion site**

**IVAD11** In selecting an appropriate intravascular insertion site, assess the risks for infection against the risks of mechanical complications and patient comfort.
*Class D/GPP*

**IVAD12** Use the upper extremity for non-tunnelled catheter placement unless medically contraindicated.
*Class C*

**Maximal sterile barrier precautions during catheter insertion**

**IVAD13** Use maximal sterile barrier precautions for the insertion of central venous access devices.
*Class C*
Cutaneous antisepsis

IVAD14 Decontaminate the skin at the insertion site with a single-use application of 2% chlorhexidine gluconate in 70% isopropyl alcohol (or povidone iodine in alcohol for patients with sensitivity to chlorhexidine) and allow to dry prior to the insertion of a central venous access device.  
Class A

IVAD15 Decontaminate the skin at the insertion site with a single-use application of 2% chlorhexidine gluconate in 70% isopropyl alcohol (or povidone iodine in alcohol for patients with sensitivity to chlorhexidine) and allow to dry before inserting a peripheral vascular access device.  
New recommendation Class D/GPP

IVAD16 Do not apply antimicrobial ointment routinely to the catheter placement site prior to insertion to prevent catheter-related bloodstream infection.  
Class D/GPP

Catheter and catheter site care

IVAD17 Use a sterile, transparent, semi-permeable polyurethane dressing to cover the intravascular insertion site.  
Class D/GPP

IVAD18 Transparent, semi-permeable polyurethane dressings should be changed every 7 days, or sooner, if they are no longer intact or if moisture collects under the dressing.  
Class D/GPP

IVAD19 Use a sterile gauze dressing if a patient has profuse perspiration or if the insertion site is bleeding or leaking, and change when inspection of the insertion site is necessary or when the dressing becomes damp, loosened or soiled. Replace with a transparent semi-permeable dressing as soon as possible.  
Class D/GPP

IVAD20 Consider the use of a chlorhexidine-impregnated sponge dressing in adult patients with a central venous catheter as a strategy to reduce catheter-related bloodstream infection.  
New recommendation Class B

IVAD21 Consider the use of daily cleansing with chlorhexidine in adult patients with a central venous catheter as a strategy to reduce catheter-related bloodstream infection.  
New recommendation Class B

IVAD22 Dressings used on tunneled or implanted catheter insertion sites should be replaced every 7 days until the insertion site has healed unless there is an indication to change them sooner. A dressing may no longer be required once the insertion site has healed.  
Class D/GPP

IVAD23 Use a single-use application of 2% chlorhexidine gluconate in 70% isopropyl alcohol (or povidone iodine in alcohol for patients with sensitivity to chlorhexidine) to clean the central catheter insertion site during dressing changes, and allow to air dry.  
Class A

IVAD24 Use a single-use application of 2% chlorhexidine gluconate in 70% isopropyl alcohol (or povidone iodine in alcohol for patients with sensitivity to chlorhexidine) to clean the peripheral venous catheter insertion site during dressing changes, and allow to air dry.  
New recommendation Class D/GPP

IVAD25 Do not apply antimicrobial ointment to catheter insertion sites as part of routine catheter site care.  
Class D/GPP

Catheter replacement strategies

IVAD26 Do not routinely replace central venous access devices to prevent catheter-related infection.  
Class A

IVAD27 Do not use guidewire-assisted catheter exchange for patients with catheter-related bloodstream infection.  
Class A

IVAD28 Peripheral vascular catheter insertion sites should be inspected at a minimum during each shift, and a Visual Infusion Phlebitis score should be recorded. The catheter should be removed when complications occur or as soon as it is no longer required.  
New recommendation Class D/GPP
Peripheral vascular catheters should be re-sited when clinically indicated and not routinely, unless device-specific recommendations from the manufacturer indicate otherwise.

*New recommendation Class B*

**General principles for catheter management**

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

*Class D/GPP*

Antimicrobial lock solutions should not be used routinely to prevent catheter-related bloodstream infections.

*Class D/GPP*

Do not routinely administer intranasal or systemic antimicrobials before insertion or during the use of an intravascular device to prevent catheter colonisation or bloodstream infection.

*Class A*

Do not use systemic anticoagulants routinely to prevent catheter-related bloodstream infection.

*Class D/GPP*

Use sterile normal saline for injection to flush and lock catheter lumens that are accessed frequently.

*Class A*

The introduction of new intravascular devices or components should be monitored for an increase in the occurrence of device-associated infection. If an increase in infection rates is suspected, this should be reported to the Medicines and Healthcare Products Regulatory Agency in the UK.

*Class D/GPP*

When safer sharps devices are used, healthcare workers should ensure that all components of the system are compatible and secured to minimise leaks and breaks in the system.

*Class D/GPP*

Administration sets in continuous use do not need to be replaced more frequently than every 96 h, unless device-specific recommendations from the manufacturer indicate otherwise, they become disconnected or the intravascular access device is replaced.

*Class A*

Administration sets for blood and blood components should be changed when the transfusion episode is complete or every 12 h (whichever is sooner).

*Class D/GPP*

Administration sets used for lipid-containing parenteral nutrition should be changed every 24 h.

*Class D/GPP*

Use quality improvement interventions to support the appropriate use and management of intravascular access devices (central and peripheral venous catheters) and ensure their timely removal. These may include:

- protocols for device insertion and maintenance;
- reminders to review the continuing use or prompt the removal of intravascular devices;
- audit and feedback of compliance with practice guidelines; and
- continuing professional education.

*New recommendation Class C/GPP*