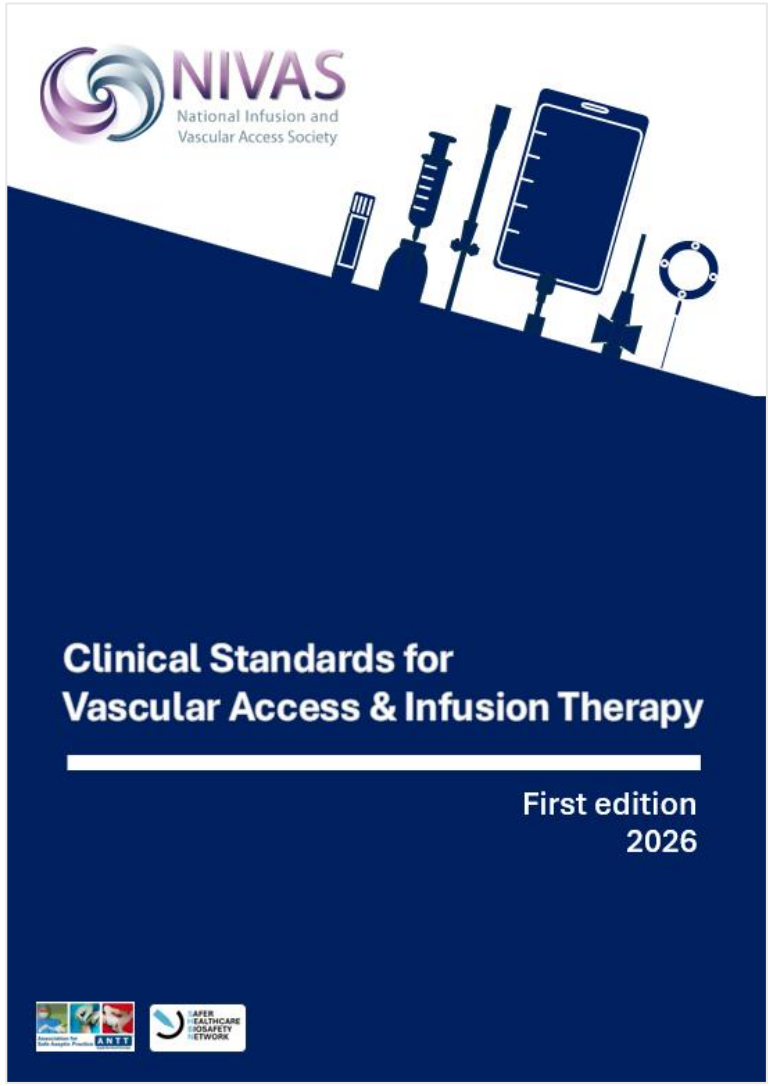
NIVAS
National Infusion and Vascular Access Society

National Standards of Practice

Andrew Barton
NIVAS Chair

THE NIVAS STANDARDS CONTENTS



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Appendix's:

- NIVAS Vascular Access Devices Decision Tool (VADD).
- DRIPP Resources.
- DRIPP Vascular Access Device Patient Pathway Guidance.
- DRIPP Vascular Access Device Definition
- DRIPP VAD Complications quick reference guide.
- I-DECIDED tool and daily assessment form.

These standards are evidenced using the most current published data available.

Where the evidence is limited, NIVAS board consensus has been used to support the standard. This has been referenced using the letter **N**.

The NIVAS Standards have been submitted for and awaiting RCN accreditation.

Referencing the Standards
A. Barton, M. Guerrero, J. Bennett, E. Smith, G. Oliver, J. Godfrey, H. Briscoe, S. Melville, P. Lee, V. Aguado Lorenzo. 2026 National Infusion & Vascular Access Society Standards for Vascular Access and Intravenous Therapy 1st Ed. National Infusion and Vascular Access Society, London, UK.

USING THE STANDARDS

6. ALTERNATIVE DRUG ADMINISTRATION ROUTES: IV TO ENTERAL SWITCH

Standard 6.1: Whenever possible an alternative to the IV route must be considered.

Practice Guidance:

A. The oral/enteral route must be used for drug and fluid delivery whenever possible. Other routes such as rectal, topical, etc., must also be considered first, if possible, before the IV route. [1,2]

B. If the patient's swallow is unsafe and a nasogastric tube can be safely placed for oral drug and fluid administration, this should be considered before the IV route. [N]

- Under each section there are standards, with a list of practice guidance underneath.
- At the end of each Section there is a list of references for each practice guidance with web links if available.
- Where the evidence is weak of missing the letter N denotes NIVAS board consensus.

References:

1. UK Health Security Agency 2023 Start smart then focus: antimicrobial stewardship toolkit for inpatient care settings. Available at: https://www.gov.uk/government/publications/antimicrobial-stewardship-start-smart-then-focus/start-smart-then-focus-antimicrobial-stewardship-toolkit-for-inpatient-care-settings#:~:text=It%20is%20essential%20that%20the,for%20example%20'stop%20antimicrobial' [Accessed 28/01/2026].
2. National Institute for Health and Care Excellence 2017 Intravenous fluid therapy in adults in hospital. Available at: https://www.nice.org.uk/guidance/cg174/chapter/recommendations [Accessed: 26/01/2026].
3. Ashiru-Oredope, D., Attwood, H. and Cullum, R., 2023. Switching patients from IV to oral antimicrobials. Pharm J, 310, p.7972.
4. NHS Scotland, Healthcare Improvement Scotland. IV to Oral Switch Policy. Available at: https://www.rightdecisions.scot.nhs.uk/antimicrobial-prescribing-nhs-forth-valley/acute-hospital-guidance/iv-to-oral-switch-policy/ [Accessed 26/01//2026]

5 CORE PRINCIPLES

THE NIVAS 5 CORE PRINCIPLES OF VASCULAR ACCESS AND INFUSION THERAPY.

- **First Principle** – Vascular access placement and IV therapy administration must only be undertaken if clinically indicated. Alternative routes of drug administration must be considered first.
- **Second Principle** – Informed consent must always be sought prior to initiating vascular access or IV therapy.
- **Third Principle** – Vessel health and preservation must be the primary consideration in clinical practice.
- **Fourth Principle** – Aseptic Non-Touch Technique (ANTT®) and infection prevention standards must always be followed in clinical practice.
- **Fifth Principle –** All healthcare professionals providing vascular access insertion/care and maintenance and IV therapy practice must be appropriately educated, maintain their competency and work within their scope of practice.

SCOPE OF PRACTICE

- Healthcare professionals/practitioners (HCPs) must operate within their agreed scope of practice as set out by their national regulatory bodies2 and employer. Furthermore, they must only undertake clinical practice to which they are trained and competent.
- HCPs are responsible and accountable for maintaining their own clinical competence. They must be confident, competent and compliant with legislation, local and national guidelines, protocols, policies and codes of conduct.
- Registered HCPs must recognise that they are accountable for their clinical practice and the clinical practice that they delegate to an unregistered healthcare worker.

HEALTH AND SAFETY



Standard 5.1: Sharps safety must be a priority in vascular access and IV therapy practice.

Standard 5.2: IV therapy and VADs used in clinical practice must be sharp safety-engineered.

Standard 5.5: IV therapy and vascular access practice must be latex-free unless a product-specific risk assessment has been undertaken to mitigate the risk.

Standard 5.6: Standardised protocols to prevent occupational exposure to Hazardous Medicinal Products (HMPs) must be in place and followed.



SAFER HEALTHCARE BIOSAFETY NETWORK

VESSEL HEALTH AND PRESERVATION

Standard 7.1 Vessel health and preservation (VHP) must be considered when planning VAD placement.

Practice Guidance:

A. Maintaining VHP is achieved by limiting the number of VAD insertions performed.[1,2]
B. The aim must be to select the most appropriate VAD which will stay in situ for the duration of the IV therapy. [1,2]
A. For CVAD placement, ultrasound should be used to measure the vein diameter to ensure catheter occupancy to vein ratio is less than ideally 33% to allow turbulent blood flow over the catheter surface and reduce the risk of thrombosis or vein phlebitis.[2,3,N]
B. The smallest gauge VAD catheter must be selected to safely deliver IV therapy, for PIVC, the smallest cannula should be sited in the most viable vessel.[1,2,6,N]

Standard 7.2: Drug pH and osmolarity must be considered when placing a VAD.

Practice Guidance:

A. The VAD placed must be appropriate for the nature of the IV therapy, i.e., vesicant or non-vesicant, and have the ability to indwell for the duration of the whole treatment regime.[4]
B. Drugs with a pH range outside of 5-9 are classed as vesicants and should be administered into a central vein.[4,5]
C. Only IV therapy with an osmolarity below 600mmols should be given into a peripheral vein.[4,5]

INFECTION PREVENTION AND CONTROL

Standard 10.2: Gloves must only be worn to protect the HCP from exposure to harmful chemicals and blood or bodily fluids, or to protect the patient from risk of infection during vascular access procedures.

Standard 10.3: Healthcare organisations must have guidelines, protocols and policies that actively reduce and mitigate the risk of infection related to IV therapy and VAD insertion and use.

Standard 10.5: Skin decontamination must be performed prior to vascular access device insertion using chlorhexidine 2% w/v with alcohol 70% v/v sterile solution.

Practice Guidance:

A. If skin is visibly soiled prior to procedure the area should be cleaned before decontaminated with chlorhexidine 2% w/v with alcohol 70% v/v. [N]

B. For peripheral cannulation, at least 1mL of chlorhexidine 2% w/v with alcohol 70% v/v must be used for skin decontamination around the intended cannulation site. [N,6,32,36]





ASEPTIC NON-TOUCH TECHNIQUE (ANTT®)

Standard 10.4: Principles of asepsis must be applied to all aspects of clinical practice associated with IV therapy and vascular access.

Practice Guidance:

Standardised Practice Terminology of ANTT®:

- Key-Site: Any portal of entry into the patient (e.g., VAD site, injection site, open wound) that could transfer harmful microorganisms and cause infection, an example of which is the skin entry site for cannulation.
- Key-Part: The component of equipment within the procedure that, if contaminated, is likely to contaminate the patient (e.g., syringe tip, male Luer end, spike of administration set, injection needle).
- General Aseptic Field: A decontaminated and disinfected surface (e.g., procedure tray, cart, or single-use procedure kit/ barrier) used to promote, but not ensure, asepsis. Key-Parts placed onto this surface must be protected by micro critical aseptic fields when not in use.
- Critical Aseptic Field: A sterile drape/barrier. Used to ensure asepsis; all procedure equipment is placed upon the drape and managed collectively.
- Micro critical aseptic field: A small protective sterile surface/housing (e.g., sterile caps, covers, the inside of recently opened sterile equipment packaging) that protect Key-Parts individually.
- Depending on the clinical procedure being undertaken, either standard-ANTT or Surgical-ANTT must be followed.

MEDICAL DEVICES

Standard 10.11: Medical device decontamination must be performed before and after each device use.

Practice Guidance:

A. Follow manufacturers guidance for individual device decontamination. [N]

Standard 10.12: Asepsis must be maintained when using an ultrasound probe during peripheral and central vascular access.

Practice Guidance

A. An appropriate sterile single-use ultrasound probe cover and gel must be used during vascular access procedures to avoid the risk of cross contamination from the probe and the skin . [N]
B. When assessing veins, if vessel cannulation is likely to be within 24 hours a single-use sterile gel and sterile probe cover must be used to prevent infection. [N,30]
C. The skin must be decontaminated, and a sterile single-use ultrasound gel and probe cover must be used during vein assessment prior to vessel cannulation.[30]
D. Designated single-use packaged sterile ultrasound gel must be used in accordance with ultrasound manufacturer's guidance. [N,30]
E. The ultrasound probe must be cleaned with a disinfectant wipe after removal of the probe cover, directly following the procedure to prevent patient-to-patient cross-contamination. Always check with the ultrasound manufacturer which type of disinfection wipe can be used. [29,41,42]

NIVAS VADEIP

Standard 10.6: VAD exit sites must be monitored and assessed regularly for signs of complications.

Practice Guidance:

A. For inpatients, a visual inspection of the VAD exit site must be undertaken[14] at least twice a day or every time the device is used. [N,7]

B. A visual inspection must be undertaken during every visit for patients in the community. [N]

C. Action must be taken to remove the device if signs of complications are present, such as redness, pain or swelling. [N,7]

D. A consistent approach using a scoring tool to assess the VAD exit-site Infection or Phlebitis must be in place.

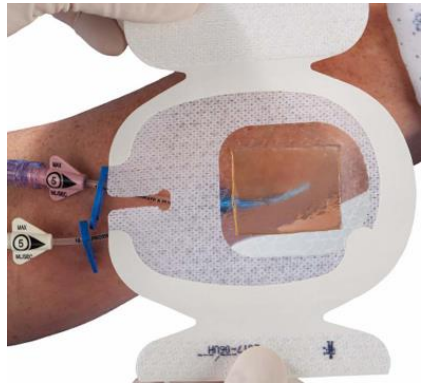
NIVAS VADEIP-Assessment Score Vascular Access Device Exit-site Infection or Phlebitis		
No Signs of Infection or phlebitis	0	**CONTINUE EXIT SITE OBSERVATION**
Signs of Exit-site Infection or Phlebitis ✓ Redness ✓ Pain ✓ Swelling ✓ Discharge	1	**REMOVE DEVICE** • Follow local policy for swabbing exit site and/or sending catheter tip for MC&S. • Cover site with sterile waterproof dressing. • Incident report and document. • Consider alternative causes – Extravasation, MARSI, Thrombosis • Follow local policy for long-term CVAD.

PROTECTING THE PATIENT

Standard 10.6: VAD exit sites must be monitored and assessed regularly for signs of complications.

Practice Guidance:

F. A sterile, single-use, vapour control semipermeable transparent film IV dressing must be used to cover the VAD with the catheter exit site being at the centre of the dressing.
G. A chlorhexidine-containing IV dressing should be used to reduce the risk of VAD-related insertion/exit site infection.
H. IV dressings must be changed every 7 days or sooner if visibly soiled or loose.



Standard 10.14: Vascular Access Devices must be protected when patients are showering.



Standard 18.1: Catheter lumen must be protected with a needle free connector (NFC) which must be decontaminated before and after each use.

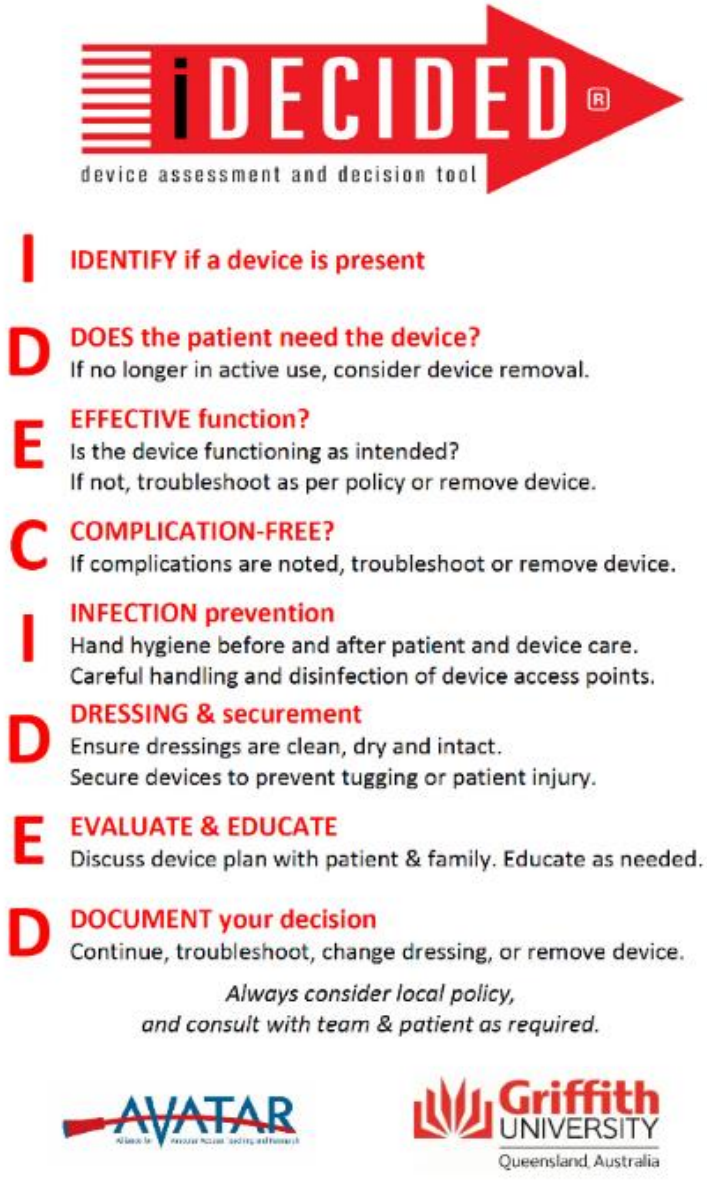
Practice Guidance

C. The NFC must be decontaminated with a Chlorhexidine 2% w/v with alcohol 70% v/v wipe for at least 15 seconds and allowed to dry before use, ensuring that ANTT is adhered to.
D. Where a patient has an allergy to chlorhexidine, an Alcohol 70% v/v swab can be used.
F. Passive disinfection caps containing alcohol 70% v/v can be attached to the NFC when the VAD is not in use to protect the NFC and VAD from infection



I DECIDED

- Adopting a standardised, hospital wide tool such as the I-DECIDED® checklist can provide a comprehensive, evidence-based, valid and reliable invasive device assessment and decision tool.
- Derived from evidence-based guidelines, this simple checklist promotes comprehensive device assessment and management and prompts timely removal of temporary invasive devices.
- The I-DECIDED tool can be used as the basis for daily in invasive device assessment documentation (Appendia3) [52,53,54,55]



FLUSHING, LOCKING, UNBLOCKING VADs

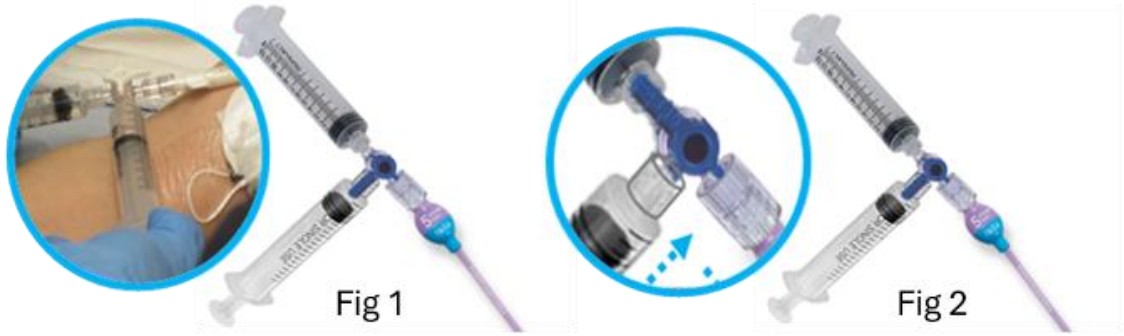
Standard 13.1 **VADs must be flushed pre and post IV administration to maintain patency.**

Standard 13.2 **CVAD locking solutions should be used to prevent catheter occlusion and infection.**

Standard 13.3 **Unblocking long term CVAD solutions**

Standard 13. 4 **VAD catheter priming volumes must be measured and documented at the time of catheter insertion.**











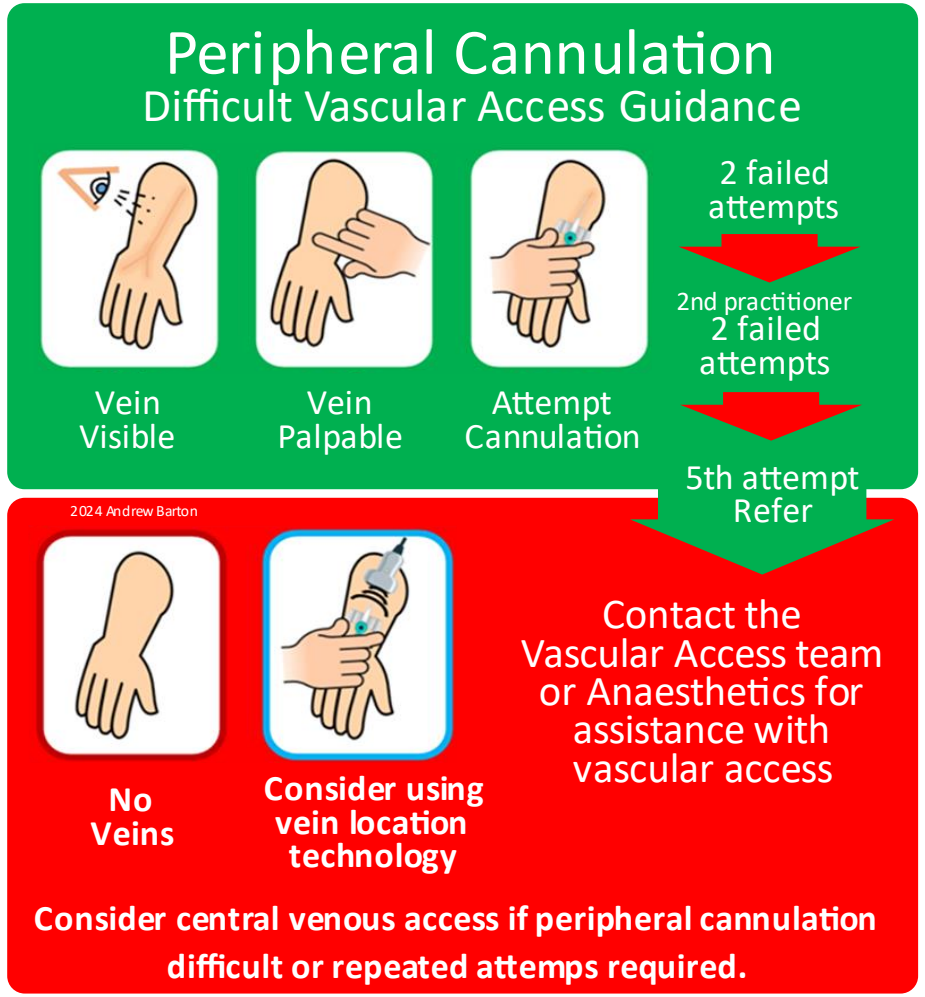
VASCULAR ACCESS

Standard 14.1 **HCPs must consider the safety of patients when undertaking VAD placement.**

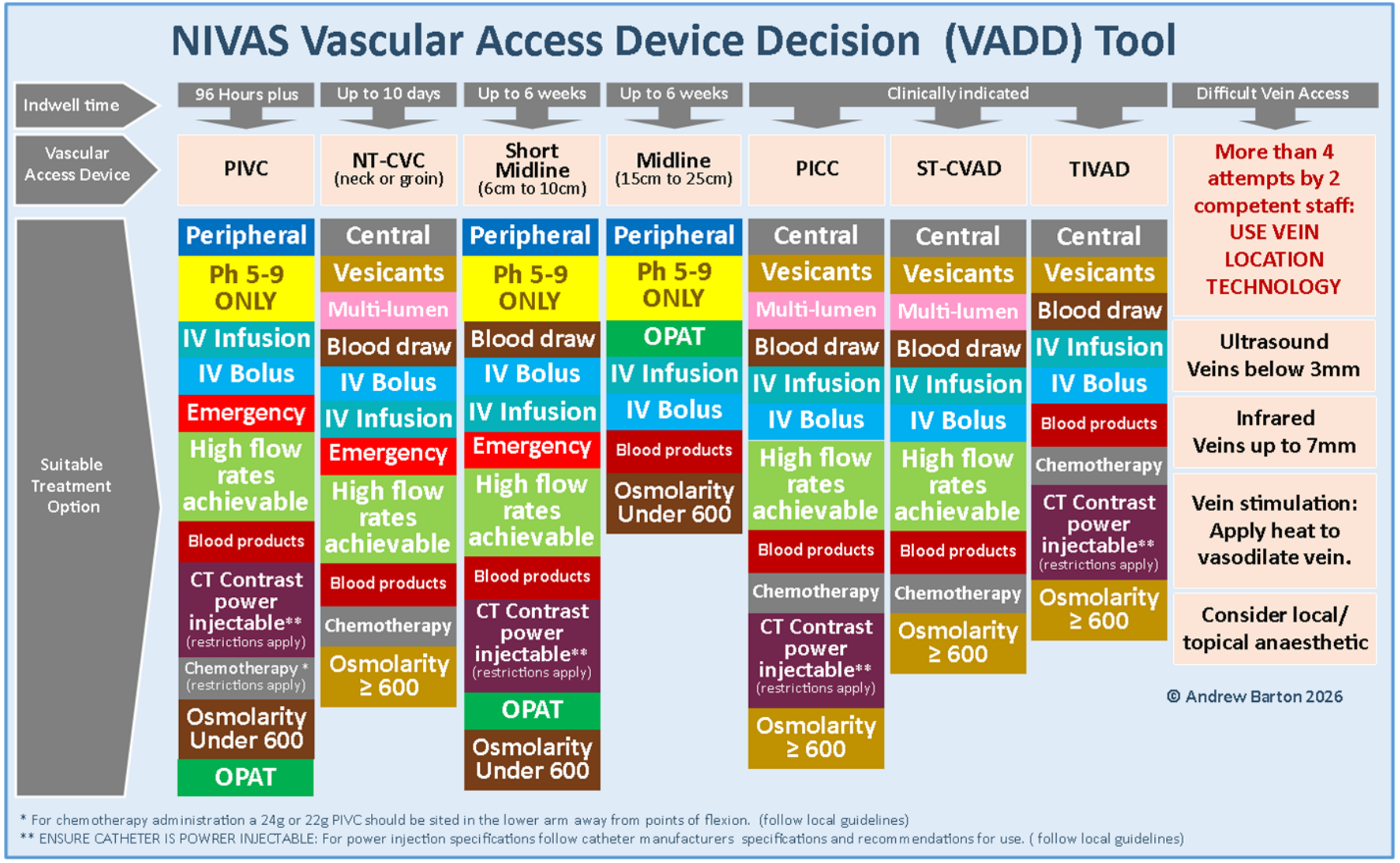
Standard 14.2 **Difficult IV access pathways must be in place to reduce the number cannulation and venepuncture attempts.**

Standard 15.6 **Longer length PIVC can be placed in patients who have deeper peripheral veins as an alternative to a standard PIVC or midline.**

Standard 15.7 **HCPs must be aware of the benefits and risks related to midline catheters.**



DEVICE SELECTION



A device insertion decision tool should be implemented to allow HCPs to decide which vascular access device will most suit the intended intravenous therapy (Appendix 1).[N]

PICC STANDARDS

Standard 16.5 Peripherally Inserted Central Catheter (PICC).

Practice Guidance:

A. PICCs are CVADs which are placed into a peripheral vein in the upper arm. The catheter tip must be positioned in the lower 3rd of the SVC near the cavo-atrial junction. [N,11,15]

B. PICCs can be inserted into the upper basilic, brachial or cephalic veins; PICCs can also be tunnelled into the veins of the neck, chest or mid-thigh and may indwell for as long as clinically required. [N,2,3,11]

C. In neonates and children, other sites are also used.[7]

D. Ultrasound guided cannulation of the vessel using a Modified Seldinger Technique (MST) should be used to insert a PICC to reduce complications. [N,2,3,9,10,11]

E. Placement of a PICC must be undertaken using surgical ANTT. [N,5,11]

F. PICCs can either be made of silicone or polyurethane, they can be open ended or have a valved (either on the distal catheter tip or the external hub) or have an external clamped. Some PICCs are power injectable, which can be used for CT contrast media injection under high-pressure. [11]

G. PICCs are available from 1Fr up to 6Fr and have single, double, or triple lumens. Choosing the catheter size and number of lumens should be related to the vessel size and intended use. [N,11]

H. If clinically indicated PICCs can be used for short term use, such as the administration of vesicant drugs to prevent peripheral extravasation. [N]

I. PICCs are not emergency CVADs; the flow rates can be slow and blood sampling can be unreliable. [N,7]

Standard 16.6 PICC tip confirmation.

Practice Guidance:

A. The catheter tip location should be located in the lower third of the SVC or at the cavo-atrial junction. [N,2,3]

B. Catheter tip position can be confirmed with IC-ECG and is the fastest way to confirm tip location. The IC-ECG P wave should be higher than its baseline amplitude on the surface ECG with no deflection, indicating the catheter tip is near the cavo-atrial junction. [N,2,3,12]

C. Intracavitary ECG technology relies on the P wave being readable; patients in atrial fibrillation or who have a pacemaker require a chest X-ray to confirm catheter tip location. [N,2,3,10,12,13,15]

D. A chest X-ray can be used to confirm placement in the lower third of the SVC. [N,2,3]

E. Catheter tip navigation technology can also be used to guide the catheter tip into the SVC and reduce malposition in real time during placement. [N,14]

F. Tip location confirmation must be documented in the patient's clinical record as safe to use. [N,2]

CVAD STANDARDS

Standard 17.5 Indwelling CVAD catheters should not be used as a method to insert a replacement CVAD catheter.

Standard 17.7 CVAD catheter tip location must be confirmed and reside in the correct position post.

Standard 17.8 CVAD catheter measurements must be documented during insertion and after during episodes of catheter care and maintenance.

Standard 17.9 CVADs placement must be undertaken in a suitable clinical environment.

Standard 17.12 HCPs must ensure a limb assessment is undertaken prior to peripheral CVAD placement.

Practice Guidance:

A. A reference circumference measurement of the patient's upper arm should be recorded in the clinical notes prior to PICC insertion for future comparison in case of upper limb DVT (ULDVT). [N,3] This should also be considered for mid-thigh PICC placement. [N]
B. The presence, or likely future placement, of an arteriovenous fistula for haemodialysis would preclude ipsilateral arm CVAD placement. [1,3,18,20]
C. Planning a peripheral CVAD placement in patients with chronic kidney disease must involve the renal team prior to placement. [N]
D. Following axillary lymph node removal, peripheral CVAD placement is preferably undertaken in the contralateral arm; however, following recent evidence, the ipsilateral arm can be used if there is no lymphoedema already present in the limb.[1, 21,22,23]
E. A VAD must not be inserted in a limb already affected by an ULDVT. [N,20]
F. Placement of a peripheral CVAD should be placed above the antecubital fossa, to minimise kinking or occlusion of the catheter and mechanical vessel phlebitis. [N,1,3]
G. Peripheral CVAD must not be placed in areas of broken skin, haematoma or infection. [N]

VAD COMPLICATIONS

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SPECIALIST PATIENT GROUPS

Standard 27.1 HCPs must consider the needs and complexities of patients who are needle phobic in relation to vascular access and IV therapy.

Standard 27.2 HCPs must consider the needs and complexities of people who inject drugs (PWID) in relation to their vascular access and IV therapy needs.

Standard 27.3 HCPs must consider the impact of placing VADs in patients who may require dialysis and IV therapy.

Standard 27.5 HCPs must consider the needs and complexities of patients with delirium and dementia in relation to vascular access and IV therapy.

Standard 27.10 HCPs must be aware of special consideration in obstetrics associated with IV therapy and vascular access insertion.

Standard 27.8 HCPs must consider all safety aspects for patients who are self-accessing VAD devices and self-administering IV therapy.

Standard 27.9 HCPs must consider the needs and complexities of patients with factitious disorder imposed on self in relation to vascular access and IV therapy.

Standard 29.1 Radiology services must have protocols in place to manage difficult IV access.

Standard 30.1 HCPs must be aware of the risks and benefits of peripheral vasopressor administration.

Thank you

The Standards are available to download for free at www.NIVAS.org.uk