NEW

CNSA Vascular Access Devices: Evidence-Based Clinical Practice Guidelines, 2024

Vessel Health and Preservation including device selection and difficult intravenous access

Vessel health and preservation (VHP) described by Moureau and colleagues in 2012 is an evidence based, standardised strategy implemented in a healthcare organisation for the ***proactive, timely*** and ***standardised insertion*** *and* ***management*** of vascular access devices (VADs) ***for the individual patient*** and ***prescribed therapy***.

The aim is to ***minimise pain, distress, and harm to the patient*** and ***maximise first time success*** to ***preserve vein health for current and future needs.***

Due to the disease process, side effects of prescribed therapies (5) and frequent, repetitive or prolonged blood sampling requirements, patients with cancer have complex venous access requirements from the outset. The duration of therapies is potentially prolonged, months, years or indefinitely to control metastatic disease. VAD management may transverse numerous different healthcare teams and settings including inpatient, high acuity, ambulatory unit, subacute community care or home care.

Therapies can damage the tunica intima, inner lining of the vein including vesicant and irritant chemotherapy, clinical trial medications, supportive therapies for example antibiotics, mannitol, parenteral nutrition, and procedural drugs, such as contrast media. This is related to their irritant, vesicant, osmolarity and pH properties. Consequently, patients with cancer have a higher risk of poor vein health and venous depletion. Therefore, proactive, timely and informed VAD management from the start is critical.

Vessel health and preservation

CNSA recommends a vessel health and preservation (VHP) strategy is incorporated in workplace procedures including:

1. The patient and family are core partners within the healthcare team.
2. VHP is a complex process that must be managed by an informed and competent healthcare team.
3. VHP is the proactive, timely and standardised VAD insertion and management considering time, patient, therapy and device related factors and regular assessment.
4. The insertion procedure is completed in a timely manner, utilising evidence-based practices and technology, facilitating patient comfort and by educated and competent clinicians.
5. Standardised, evidence-based management to maintain VAD dressing, securement and patency to reduce the risk complications is essential.
6. VAD is removed when no longer required or for unresolved complications.
7. Evaluation is an integral component of any VAD related quality improvement initiative or practice changes.

Device selection

CNSA recommends

1. Education: patient, family and healthcare team education includes VAD selection considering all relevant factors (time, patient, therapy, workplace-related, evaluation) that may influence the decision to make an informed decision.
2. Time related factors: selection of the most appropriate vascular access device for elective insertion is accomplished within 24-48 hours from determining the need for intravenous therapy. Emergent VAD selection is determined by the medical needs of the patient.
3. Patient related factors: are considered during the device selection process including patient choice, diagnoses, venous assessment, age, and pathology results.
4. Therapy related factors: include type, speed, duration, frequency and intensity, setting, potential side effects,
5. Device related factors: include peripheral (PIVC, midline) or CVADs (PICC, TIVAD, tc-CICC, etc).
6. Workplace related factors: education, device selection algorithm in procedures, range of appropriate VADs available, vascular access teams.
7. Evaluation: standardised daily assessment of VAD using validated tool e.g. I-DECIDED to evaluate the VAD selection & continued use of VAD.

DID YOU KNOW?

75% of hospital patients have a PIVC inserted, and of these 80% fail.

Approx. 33% adults and 50% paediatric patients have difficult venous access.

GOAL: first insertion success

Australia was the first country in the world to publish PIVC standards -

Australian Commission on Safety and Quality in Health Care ***Management of Peripheral Intravenous Catheters Clinical Care Standard, 2021.***

Difficult intravenous access - DIVA

CNSA recommends

1. Standard assessment.

   Clinicians complete a standardised, concise venous status assessment on all patients prior to commencing IV therapy including:

   A. Vein palpability
   B. Vein visibility
   C. History of difficult access or use of advanced strategies to obtain vascular access (or self-identification of DIVA status

   Venous status assessment tool is documented in workplace procedures to standardise clinical management.

   Patient's DIVA status is documented in patient's health record and discussed with patient and family.

2. Identification

   If patient has A. B or C. (above) then proceed directly to DIVA management.

   Complete comprehensive assessment if uncertain.

3. Management

   Performed by educated and competent clinicians.

   Advanced management of adults and paediatric patients with DIVA is implemented at the outset and not as a rescue strategy after failed PIVC insertion attempts including patient preparation, use of assistive imaging technology, clinician and product considerations.

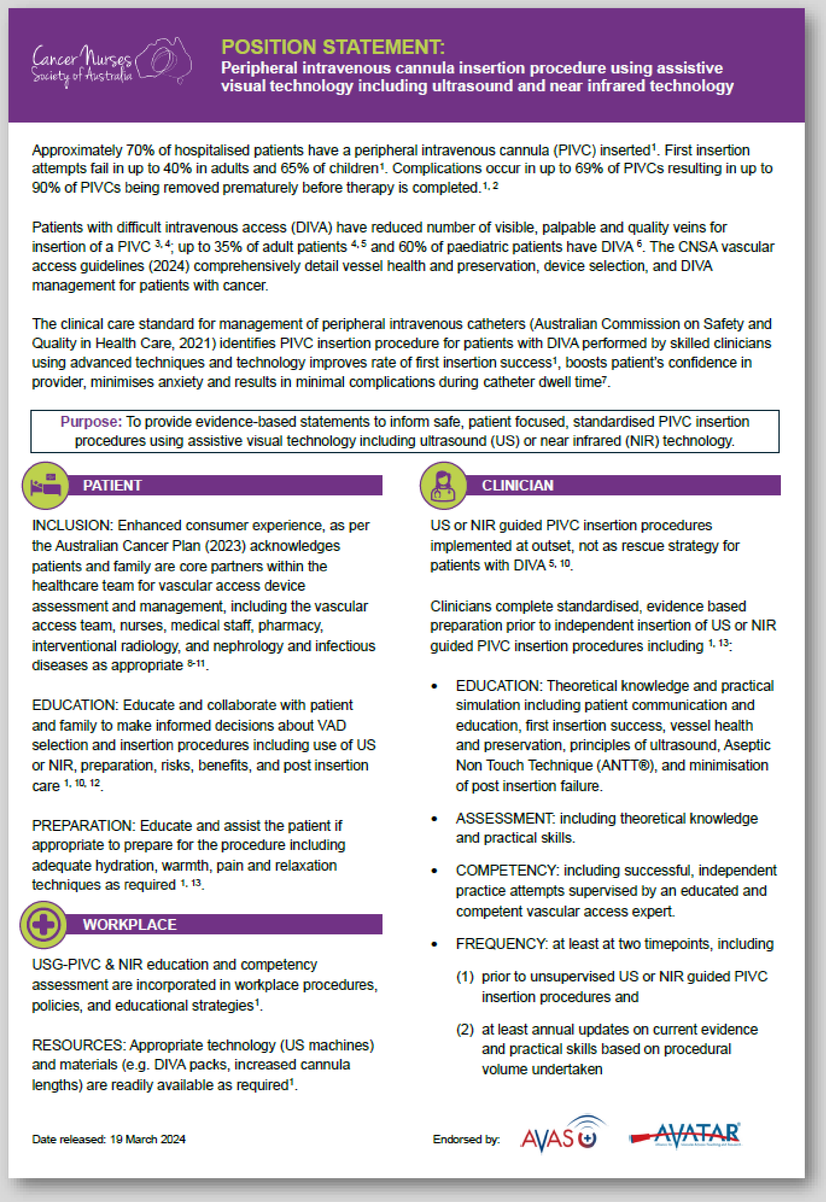
Endorsed by

Clinical Oncology Society of Australia

HSANZ Haematology Society of Australia and New Zealand

AVAS Australian Vascular Access Society Promoting safety and excellence in Vascular Access

AVATAR Alliance for Vascular Access Teaching and Research



Cancer Nurses Society of Australia

POSITION STATEMENT:
Peripheral intravenous cannula insertion procedure using assistive visual technology including ultrasound and near infrared technology

Approximately 70% of hospitalised patients have a peripheral intravenous cannula (PIVC) inserted[1]. First insertion attempts fail in up to 40% in adults and 65% of children[1]. Complications occur in up to 69% of PIVCs resulting in up to 90% of PIVCs being removed prematurely before therapy is completed.[1, 2]

Patients with difficult intravenous access (DIVA) have reduced number of visible, palpable and quality veins for insertion of a PIVC [3, 4]; up to 35% of adult patients [4, 5] and 60% of paediatric patients have DIVA [6]. The CNSA vascular access guidelines (2024) comprehensively detail vessel health and preservation, device selection, and DIVA management for patients with cancer.

The clinical care standard for management of peripheral intravenous catheters (Australian Commission on Safety and Quality in Health Care, 2021) identifies PIVC insertion procedure for patients with DIVA performed by skilled clinicians using advanced techniques and technology improves rate of first insertion success[1], boosts patient's confidence in provider, minimises anxiety and results in minimal complications during catheter dwell time[7].

Purpose: To provide evidence-based statements to inform safe, patient focused, standardised PIVC insertion procedures using assistive visual technology including ultrasound (US) or near infrared (NIR) technology.

PATIENT

INCLUSION: Enhanced consumer experience, as per the Australian Cancer Plan (2023) acknowledges patients and family are core partners within the healthcare team for vascular access device assessment and management, including the vascular access team, nurses, medical staff, pharmacy, interventional radiology, and nephrology and infectious diseases as appropriate [8-11].

EDUCATION: Educate and collaborate with patient and family to make informed decisions about VAD selection and insertion procedures including use of US or NIR, preparation, risks, benefits, and post insertion care [1, 10, 12].

PREPARATION: Educate and assist the patient if appropriate to prepare for the procedure including adequate hydration, warmth, pain and relaxation techniques as required [1, 13].

WORKPLACE

USG-PIVC & NIR education and competency assessment are incorporated in workplace procedures, policies, and educational strategies[1].

RESOURCES: Appropriate technology (US machines) and materials (e.g. DIVA packs, increased cannula lengths) are readily available as required[1].

CLINICIAN

US or NIR guided PIVC insertion procedures implemented at outset, not as rescue strategy for patients with DIVA [5, 10].

Clinicians complete standardised, evidence based preparation prior to independent insertion of US or NIR guided PIVC insertion procedures including [1, 13]:

- EDUCATION: Theoretical knowledge and practical simulation including patient communication and education, first insertion success, vessel health and preservation, principles of ultrasound, Aseptic Non Touch Technique (ANTT®), and minimisation of post insertion failure.
- ASSESSMENT: including theoretical knowledge and practical skills.
- COMPETENCY: including successful, independent practice attempts supervised by an educated and competent vascular access expert.
- FREQUENCY: at least at two timepoints, including
  (1) prior to unsupervised US or NIR guided PIVC insertion procedures and
  (2) at least annual updates on current evidence and practical skills based on procedural volume undertaken

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