

PERIPHERAL INTRAVENOUS CATHETERS - CLINICAL STANDARD PRACTICE GUIDELINE®

DOCUMENT SUMMARY/KEY POINTS

- This document outlines the principles of venepuncture and inserting, securing and monitoring a peripheral intravenous cannula (PIVC) in the paediatric patient.
- This document is guided by the [ACSQHC Management of Peripheral Intravenous Catheters Clinical Care Standard May 2021¹](#)
- Clinicians who insert, manage, and remove PIVC's must have completed training, education and assessment. Recognition of prior learning will apply.
- This document outlines the accreditation process for RNs & ENs (where venepuncture and intravenous cannulation is part of their clearly defined role and identified within their position description) to undertake cannulation.
- Only **two attempts** by an individual clinician to perform venepuncture or insert a PIVC shall be undertaken. This includes any puncture of the skin irrespective of whether the vein has been punctured.
- Daily review and assessment is required for the necessity for the cannula to remain in place and remove if no longer required: this includes documenting in the patient notes.
- Cannula site "checks" are required **every hour** and documented in eMR.
- All children with a PIVC cannula with or without fluids, are to have documentation notated in the clinical record for *every shift*.
- Any adverse outcomes e.g. extravasation or pressure injuries are documented in **IMS+**.

Safety Alert: Be aware that any patient with cyanotic heart disease and right to left shunting may be at risk of systemic air embolism with introduction of air into the venous system.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st March 2022	Review Period: 3 years
Team Leader:	Nurse Educator	Area/Dept: Emergency Department

CHANGE SUMMARY

Guiding principles of this guideline follow:

[ACSQHC Management of Peripheral Intravenous Catheters Clinical Care Standard May 2021](#)¹

[Intravascular Access Devices \(IVAD\) – Infection Prevention & Control – 2019](#)¹⁵

[Vessel Health and Preservation: the Right Approach for Vascular Access - 2019](#)¹²

- Maintenance of a log for proof of competency in skill is no longer mandatory. It is the clinicians professional responsibility to stay up to date with current evidence based practice and guidelines, and competence in the skill. A Record of Practice resource is available for those who would like to maintain a log for personal documentation or as required by local guidelines.
- Title updated to be the similar to the ACSQHC Management of Peripheral Intravenous Catheters Clinical Care Standard May 2021, previous title being *Intravenous Cannulation and Venepuncture*.
- **31/03/2022:** Minor review. Updated links on page 18 Appendix 3 SCHN Nurse Accreditation since new HETI Course Codes were created for PIVC nurse education accreditation.
- **22/12/2022:** Minor review. Updated Standard 8 to include 4th hourly checks when PIVC is capped.
- **20/01/2023:** Minor review. Updated link to Workbook, page 18.

READ ACKNOWLEDGEMENT

- Medical staff, RNs, ENs and relevant managers are to read and acknowledge having read and understood the contents of this document.

NOTE: Training/Assessment Required – Accreditation procedures for RNs and ENs.

- Where sedation may be required see Section 8.11 in the [SCHN Procedural Sedation Guideline](#)

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st March 2022	Review Period: 3 years
Team Leader:	Nurse Educator	Area/Dept: Emergency Department

TABLE OF CONTENTS

Purpose	4
Introduction	4
Scope	4
Standard 1 - Assess intravenous access needs	5
Standard 2 - Inform and partner with patients and carers	5
Standard 3 - Ensure competency	6
Standard 4 - Choose the right insertion site and PIVC	6
Standard 5 - Maximise first insertion success	7
Standard 6 - Insert and secure	8
Standard 7 - Document decisions and care	9
Standard 8 - Routine use: inspect, access and flush	10
Standard 9 - Review ongoing need	11
Standard 10 - Remove safely and replace if needed	11
Appendix 1- PIVC Access - Decision & Escalation Pathway	13
Appendix 2 - DIVA Scoring Tool & PIVC size and use^{10, 18}	16
Appendix 3 - SCHN Nurse Accreditation	17
Appendix 4 – Therapeutic hold examples	19
Appendix 5 – IV WISE patient discussion tool¹	20
Appendix 6 - SCHN PIVC Care Prompt Card for Clinicians	21
Appendix 7 - SCHN PIVC Care Prompt Card for Families	23
Appendix 8 - Product Reference Guide	24
Appendix 9 - References	27

Purpose

To provide high quality care and reduce complications associated with inserting, managing and removal of PIVC's.

To provide clinicians guidance for training and consistent practice in inserting and maintaining PIVC's.

To provide timely and safe intravenous access for paediatric patients.

Introduction

Peripheral intravenous cannulation (PIVC) and venepuncture are procedures often used to establish a route for medication and/or fluid administration or to obtain a sample of blood for testing.

Quick facts about PIVCs¹

- Up to 70% of hospitalised patients require at least one PIVC at some point during their hospital stay
- Between 4% - 28% of PIVCs inserted are not needed. This increases to 50% in the emergency department, where a PIVC is often inserted "just in case"
- Up to 69% of PIVCs are associated with complications, leading to up to 90% of PIVCs being removed before therapy is finished
- If a patient has one PIVC fail, the risk of future PIVCs failing is greater.
- First insertion success rates are poor. First insertion attempts fail in up to 40% of adults and in up to 65% of children.

The SCHN PIVC Care Bundle **Appendix 6** is a simple set of practices that help guide clinicians to improve patient outcomes when considering vascular access.

Scope

The document outlines the minimum standards to ensure safe cannulation and care of a PIVC.

All clinicians who are responsible for venepunctures and the insertion and ongoing management of a PIVC must be appropriately qualified and trained to do so within their scope of practice.

Nurses who have successfully completed Sydney Children's Hospital Network (SCHN) venepuncture and cannulation course and have fulfilled ongoing accreditation requirements are able to:

- Cannulate at the request of a Medical Officer or Nurse Practitioner.
- Site/resite cannula for patients with orders for intravenous therapy after clarification by the medical officer or Nurse Practitioner.
- Perform venepuncture for the purpose of collecting blood at the request of the Medical Officer or Nurse Practitioner, and for the purpose of collecting samples when pathology staff are un-available.

The following procedures are ***not included within the scope*** of this document:

- Insertion and management of [Central Venous Access Devices](#), administration of Parenteral Nutrition, transfusion of blood and blood components and insertion and management of arterial or umbilical lines.
- [Intra-osseous](#) insertion and management.

Standard 1 - Assess intravenous access needs

- Consider the need for a PIVC and whether other options may be appropriate eg oral, intramuscular, or nasogastric ¹.
 - Refer to the Venous Access Decision Pathway [SCH](#) or [CHW](#) to determine whether peripheral, midline or central access is most appropriate.
- Assess whether peripheral or central venous is appropriate ¹:
 - medical history, age, clinical condition, comorbidities
 - prescribed therapy, anticipation of duration of therapy
 - history of vascular access and infusion therapy and complications
 - resources and ability to care for the device.
 - availability of appropriate insertion sites and likelihood of first time insertion
- Discuss and ascertain that the patient (if appropriate) and carers understand the need for IV therapy, especially if multiple options are available, specific clinical issues need to be raised about the therapy, or if the carer has concerns. Document the outcome of the discussion as part of the informed consent process ¹.
- Selection of the most appropriate vascular access device occurs as a collaborative process among the multidisciplinary team, the patient and the patient caregivers.

Standard 2 - Inform and partner with patients and carers

- Verbal consent should be obtained from the child and/or guardian prior to the procedure. To obtain informed consent the health practitioner who performs the procedure must inform the child and/or guardian of the risks, discuss the necessity of the PIVC and explain the procedure ^{14, 17}.
- Children 14-16 years may be considered mature minors, and may be able to give consent or refuse treatment ¹⁴. If a Medical Practitioner assesses a Minor competent (also known as a Mature Minor) and the Minor can give valid consent, then the consent of the parent or guardian will not be required. However, where the Minor agrees, it is good practice to involve the family in the decision-making process where appropriate ¹⁴.
- Invite the patient/carers to ask questions, and use methods such as **teach-back** to confirm they understand the information they have received ¹.
- Confirm patient identity, procedure, allergies & consider anticipated critical / adverse events as per [Clinical Procedure Safety Policy](#) ⁵.
- Provide the Factsheet "[The facts about drips](#)" to parents and carers.

- Developmental age and condition will guide the clinician in appropriate preparation of the infant/child for the procedure. Partner with parents/carers to plan best approach to procedure.
- Where possible the [child life therapist](#) should be involved in helping prepare the child and family.
- Ideally the procedure should be performed in a procedure room. Distraction tools appropriate to developmental age should be utilised.
- **See Appendix 5** for IV-WISE patient discussion tool ¹.

Standard 3 - Ensure competency

- Clinicians who insert, manage, and remove PIVC's must have completed training, education and assessment ¹. Recognition of prior learning will apply.
- Clinicians must maintain continuing education and practice to ensure skills and knowledge remain in line with current practice recommendations and competency is maintained ¹.
- Nurses performing intravenous cannulation and venepuncture must hold current accreditation to do so or be participating in the accreditation program.
- Nurses eligible to undertake the accreditation program are nurses who, with approval from their Line Manager and upon accreditation, will work in areas where intravenous cannulation and venepuncture occur.
- Nurses must have successfully completed both the SCHN Cannulation and Venepuncture Theoretical Learning and specific cannulation and venepuncture practical program of education ¹⁹. **See Appendix 3**
- Accredited nurses are approved to insert an intravenous cannula into the peripheral veins of the upper and lower limbs. Theatre staff are an exception to this principle as type of surgery may affect limbs available for cannulation.

Standard 4 - Choose the right insertion site and PIVC

- Look carefully with a tourniquet for the most suitable vein and remember that in paediatric patients the best vein may not necessarily be palpable. See **Appendix 2 for DIVA Scoring Tool** ^{7, 10}.
- Dorsum of the non-dominant hand is preferred - the vein running between the 4th and 5th metacarpals is most frequently used.
- In addition to the usual sites in adults, commonly used sites in children include the volar aspect of the forearm ^{10, 21}.
- Consider practicalities of splinting (e.g. elbow, foot in a mobile child).
- Scalp veins should only be used by more experienced doctors or Neonatal Nurse Practitioners (shaved scalp hair re-grows very slowly).
- Where possible avoid areas of flexion (e.g. wrist or cubital fossa) and lower extremities unless necessary.

- Device selection should be based on the principle of the smallest possible device for the completion of treatment.
- PIVCs range from 24 gauge (most commonly used in neonates and infants) to 14 gauge, which is infrequently used in paediatrics but may be required in various situations including trauma, fluid resuscitation or blood transfusions in adolescents.
- See **Appendix 2** for characteristics and indications of PIVC gauges in paediatrics and for Vein Identification Scale ^{10,12,18}.
- Ultrasound evaluation of veins is an invaluable resource to assess venous course, identify underlying structures such as arteries and nerves and ensure venous patency before venous puncture ¹².
- Real-time ultrasound guidance has been shown to reduce complications, procedure time, and improve first time puncture and overall success of peripheral catheter placement.
- Ultrasound for PIVC insertion facilitates choice of catheter length that will ensure sufficient catheter is residing within the vein lumen.
- Only clinicians trained in Ultrasound Vascular Access should attempt this method of cannulation ¹².

Standard 5 - Maximise first insertion success

- If clinical presentation of a patient is such that the likelihood of inserting a PIVC successfully on the first attempt is low given your current experience follow the **PIVC Access - Decision & Escalation Pathway (appendix 1)** ^{4,18}.
- Where clinically appropriate the use of local/topical anaesthetic ([LMX](#), [emla](#) or [CoolSense](#)) should be used ^{18,22}.
- It may be necessary to hold a child gently but firmly during clinical procedures to maintain the child's safety and prevent injury. Holding is distinguished from restraint by the degree of force required and the intention.
- [Age appropriate distraction](#) and reward techniques should be used in conjunction with therapeutic holding techniques. Refer to **Appendix 4** for information on therapeutic holds ²⁰.
- Neonates benefit from oral sucrose or expressed breast milk (up to 0.5mls for either) with a dummy as a pain management strategy. Refer to the [Sucrose policy](#) ¹¹.
- Occasionally sedation such as nitrous oxide or oral midazolam may be required for cannulation. This should be discussed with a senior registrar or consultant and carried out as per [SCHN Procedural Sedation \(Paediatric Ward, Clinic and Imaging Areas\) Practice Guideline, Procedural Sedation in the Emergency Department - SCH, or Paediatric Procedural Sedation in the Emergency Department - CHW](#)
- **Only 2 attempts** to perform venepuncture or insert a PIVC shall be undertaken by any staff member (medical or nursing), unless there are exceptional circumstances. In this case further attempts must be discussed with the senior clinician. This includes any puncture of the skin irrespective of whether the vein has been punctured. Refer to the **PIVC Access - Decision & Escalation Pathways – Appendix 1** ^{4,18}.

- When the insertion of a PIVC has been unsuccessful or it is deemed unlikely to succeed, the Medical Officer responsible for the child's medical care must formulate an appropriate plan. Refer to the Venous Access Decision Pathway [SCH](#), or [CHW](#) and **PIVC Access - Decision & Escalation Pathway – Appendix 1** ^{4, 18}.
- A medical order for intravenous fluids, blood products, serial blood sample collection or the administration of medication will constitute a medical order for the insertion of a PIVC.

Standard 6 - Insert and secure

- PIVC cannulation and venepuncture are procedures requiring aseptic non-touch technique (ANTT). “The aim of aseptic non touch technique is to prevent the transmission of micro-organisms to wounds or susceptible sites, to reduce the risk of infection.” An [ANTT](#) risk assessment should be conducted to determine use of Standard or Surgical ANTT for the cannulation procedure ^{1, 10, 15}.
- Skin preparation is essential to reduce risk of infection.
 - **0.1% Aqueous Chlorhexidine is recommended for skin antisepsis in neonates and infants up to 8 weeks of age** due to risks of skin irritation and chemical burns if a stronger skin prep is used.
 - 2% Chlorhexidine Gluconate in 70% alcohol is used for skin preparation in children greater than 8 weeks of age
- **Before applying the semipermeable dressing swab area around insertion site with a barrier film eg Cavilon™** to protect the skin from adhesive-related injury and may also assist in improving security of dressing ²¹.
- Sterile, bordered, transparent semi-permeable dressings ¹⁰ are to be used to secure the PIVC. Consider patients allergies to tapes.



- Splinting should only be used on areas of flexion ¹⁰ (e.g. wrist, elbow joint), ensuring that the fingers / toes remain exposed. Use elasticised tape/ Foam tapes (securer/Microfoam) to secure limb to arm board.

- Ensure that PIVCs are labelled in accordance with the [National Standard for User-applied Labelling of Injectable Medicines, Fluids and Lines](#) ^{1, 13}.

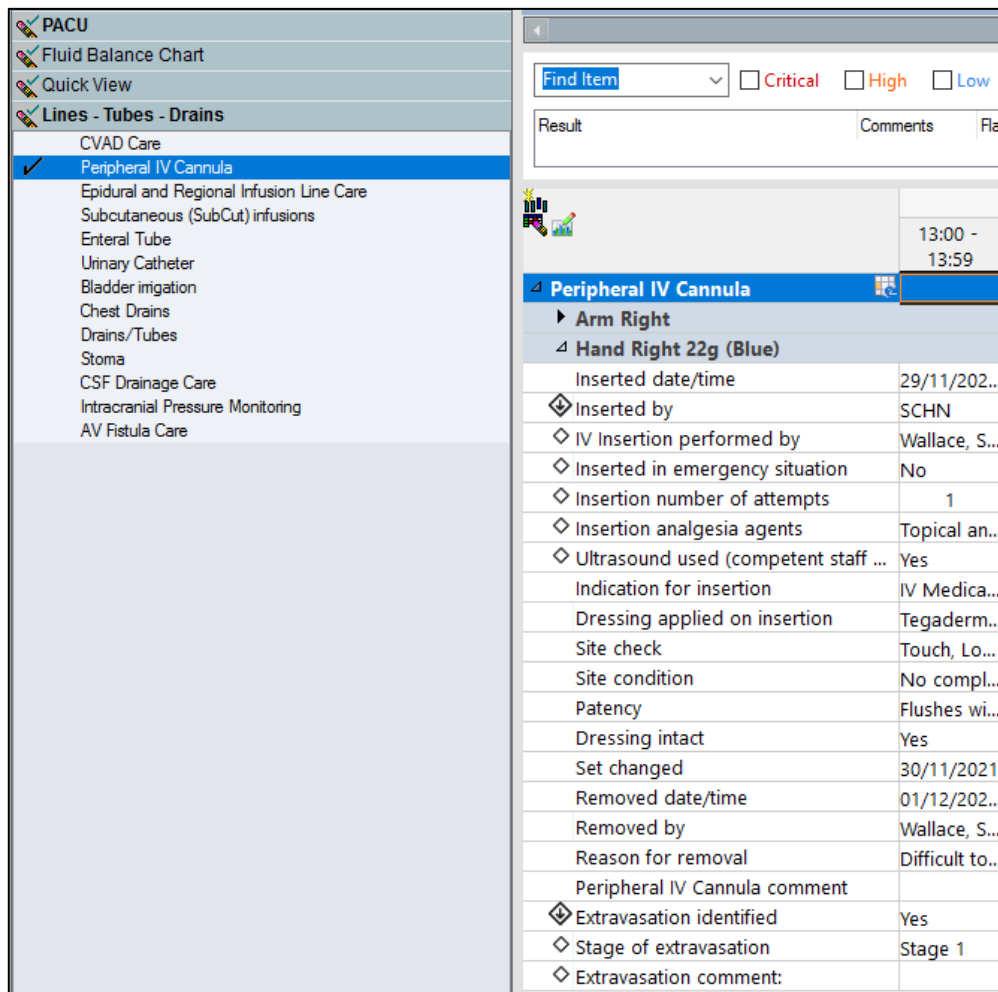


Crepe bandages should not be used to wrap limbs with PIVC's in-situ as the site must be visible for inspection hourly. If a form of covering is required due to risk of patient removing PIVC use Tubifast / Tubinet to enable easy viewing of the site hourly.

Standard 7 - Document decisions and care

- Mandatory documentation must be completed by clinicians performing the PIVC insertion procedure and should be recorded in the patient clinical notes ¹ in **eMR (Interactive View and I&O) OR in the NETS paperwork**, including:
 - Insertion site, laterality and gauge
 - Insertion date and time
 - Inserted by (SCHN, Ambulance or External Facility)
 - Insertion performed by (proceduralist name)
 - Inserted in emergency situation (yes/no)
 - Insertion number of attempts
 - Insertion analgesia agents used
 - Ultrasound use during insertion
 - Indication for insertion
 - Dressing and securement applied on insertion
- If any adverse event occurred during the procedure of insertion of a PIVC, the Medical Officer responsible for the child's medical care shall be notified immediately and the event entered into IMS+ by the staff who attempted the cannulation.
- **PIVC mandatory site checks** are to be documented every hour or if the patient or carer raises concerns in eMR or in NETS paperwork. For eMR documentation - Interactive View and I&O, this includes:
 - Site check (Touch, Look, Compare)
 - Site condition assessment
 - Patency
 - Dressing intact
 - IV set changed (only at time of completion)

- **Additional optional PIVC pump pressure** checks will depend on a number of factors such as the size of the vein, rate at which fluid is being infused, type of fluid being infused, and size of the cannula. The monitoring and documentation of pump pressure may be useful in monitoring the trend but does not replace visualisation of the site.



The screenshot shows a clinical information system interface. On the left is a navigation menu with categories like PACU, Fluid Balance Chart, Quick View, and Lines - Tubes - Drains. Under 'Lines - Tubes - Drains', 'Peripheral IV Cannula' is selected. The main area on the right displays a search bar and a table of results. The selected record for 'Peripheral IV Cannula' is expanded to show details for 'Arm Right' and 'Hand Right 22g (Blue)'. The details include insertion date/time (29/11/2021), inserter (SCHN), IV insertion performed by (Wallace, S...), insertion number of attempts (1), insertion analgesia agents (Topical an...), ultrasound used (Yes), indication for insertion (IV Medica...), dressing applied (Tegaderm...), site check (Touch, Lo...), site condition (No compl...), patency (Flushes wi...), dressing intact (Yes), set changed (30/11/2021), removed date/time (01/12/2021), removed by (Wallace, S...), reason for removal (Difficult to...), and extravasation status (Extravasation identified: Yes, Stage of extravasation: Stage 1).

Standard 8 - Routine use: inspect, access and flush

- Routine inspection of the PIVC site is performed **EVERY HOUR if infusions are running or 4-6th Hourly if the PIVC is capped** for signs of complications including 1:
 - Site check (Touch, Look, Compare, **Appendix 6**)
 - Site condition assessment (pain, oedema, ooze, erythema, site leakage, thrombophlebitis, pressure injury, hot to touch, decreased capillary refill)
 - Patency
 - Dressing intact
- If concerns refer to [SCHN IV Extravasation Management Practice Guideline](#) for guidance on management.
- Discuss with parent/carer any concerns regarding the PIVC and their understanding of the continued need for PIVC. Ensure parents/carers have the **PIVC Bundle of care**

(Appendix 7) and know what signs and symptoms they should report and advise of the importance of telling the clinician of their concerns if any.

- There is insufficient evidence to support the theory that heparin prolongs the life of a PIVC, therefore cannula flushing unless otherwise indicated (e.g. limited circulatory volume) is to be with 0.9% sodium chloride ^{8, 10}.
- In most cases, intermittent infusions will not affect the life of the cannula and the significant advantage noted in the literature ^{1, 10} is the practice allows the infant/child or young person to become more mobile and easier to care for in the Hospital environment.
- [Aseptic Non Touch Technique](#) precautions should be used when performing PIVC care procedures.
- Decontaminate access ports before and after access by scrubbing the hub for 20 seconds and allowing to visibly dry prior to accessing the PIVC.
- If PIVC is capped, flush with 0.9% sodium chloride 4-6 hourly to reduce risk of blockage and prevent mixing of incompatible medicines or fluids.
- Any adverse outcomes e.g. extravasation injuries are documented in IMS+.

Standard 9 - Review ongoing need

- Review and document the ongoing need for a patients PIVC at least once per day or more often if clinically indicated ¹.
- Review whether switching from IV to oral therapy is possible.
- Remove PIVC immediately if no longer required.

Standard 10 - Remove safely and replace if needed

- Remove PIVCs as soon as they are no longer needed or if complications occur ¹. In the case of an extravasation injury, consult the recommendations for management in the [SCHN IV Extravasation Management Practice Guideline](#) prior to PIVC removal.
- Document the reason for removal and the condition of the site.
- Provide written discharge advice for signs to look out for after removal of PIVC and who they should contact if signs of infection develop.
- Do not routinely replace PIVCs in neonates and children. Replace with a new PIVC if IV therapy still required. If extended IV therapy anticipated consider alternative device e.g. central venous access device.

PIVC Removal documentation must be completed in **eMR (Interactive View and I&O) OR in the NETS paperwork**, including:

- Removal date and time
- Removed by (proceduralist)
- Reason for removal

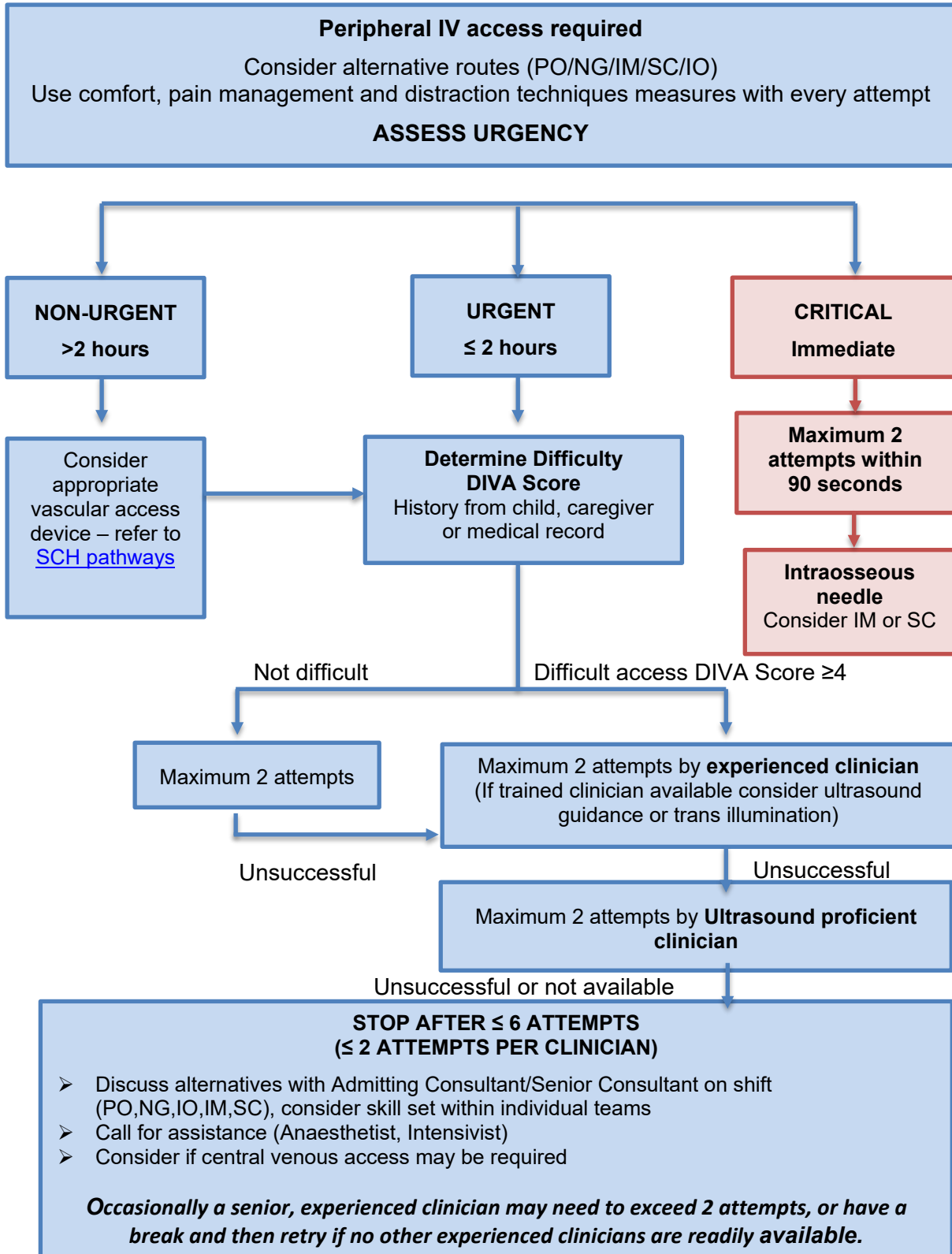


- Extravasation identified (yes/no) including Stage of Extravasation injury if identified

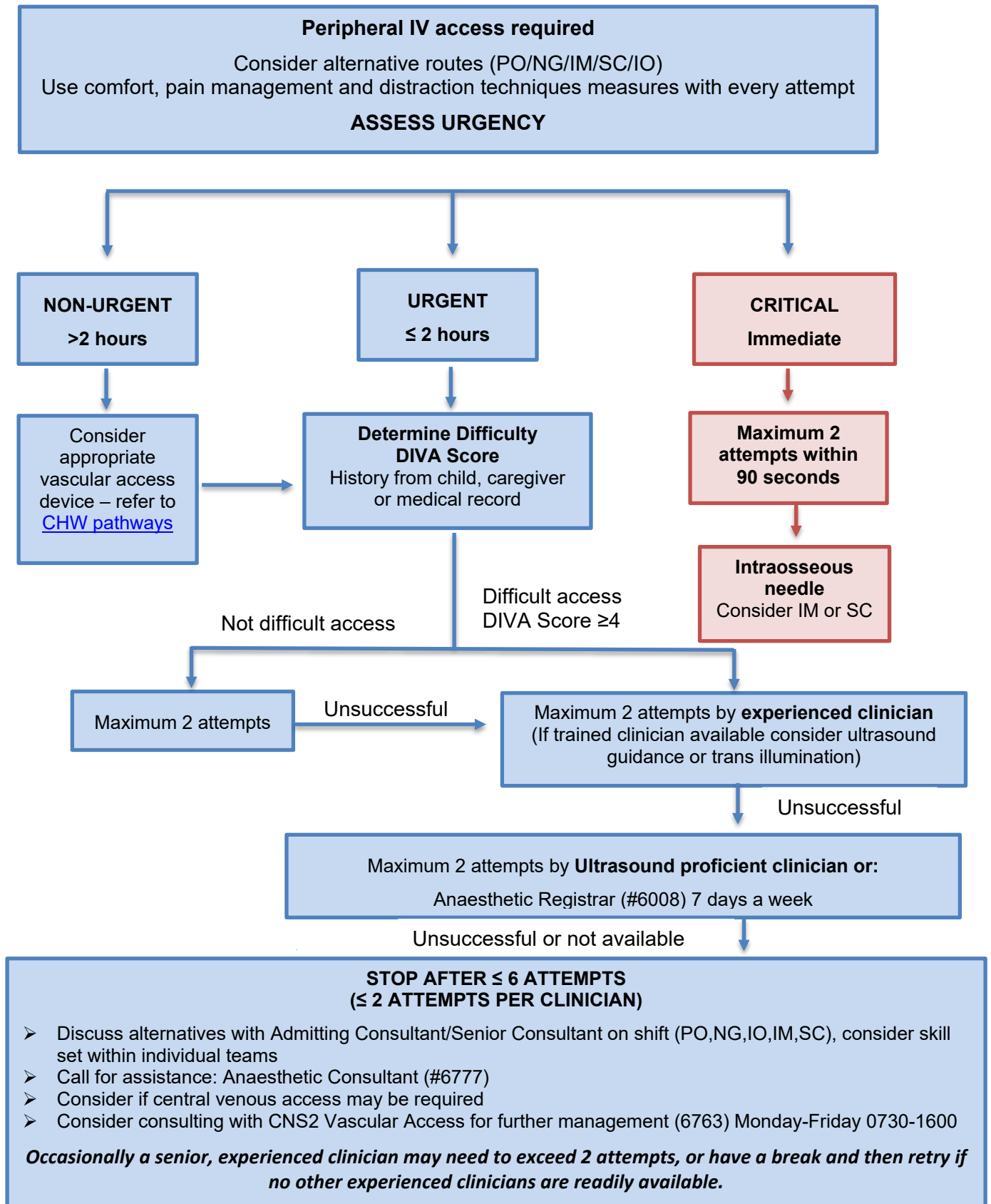
ALERT: When removing a PIVC, avoid using sharps and/or scissors to remove tapes and dressings as this may cause injury or harm to child.

Appendix 1- PIVC Access - Decision & Escalation Pathway

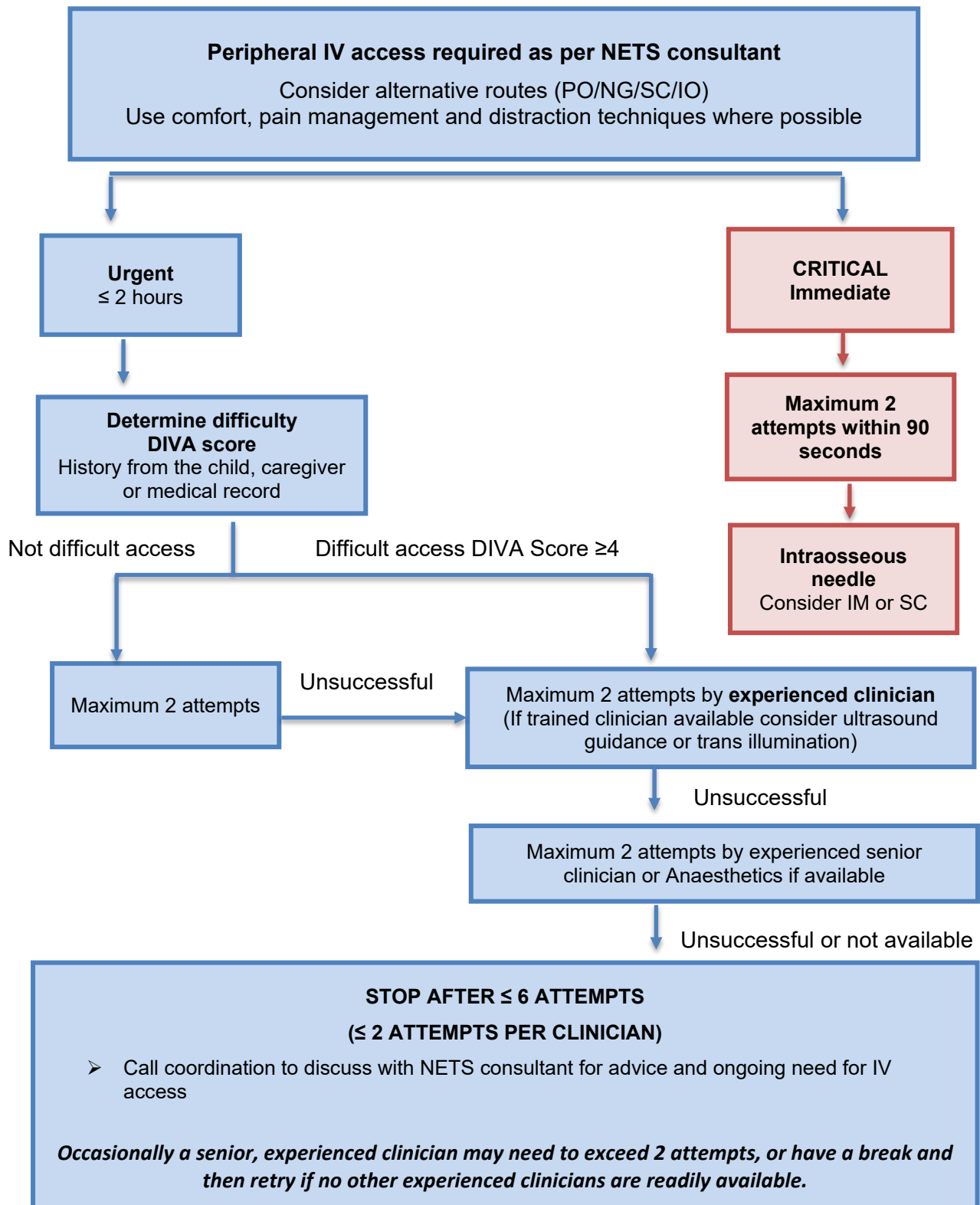
SCH – PIVC Access - Decision & Escalation Pathway



CHW – PIVC Access Decision & Escalation Pathway



NETS – PIVC Access Decision & Escalation Pathway



Appendix 2 - DIVA Scoring Tool & PIVC size and use ^{10, 18}

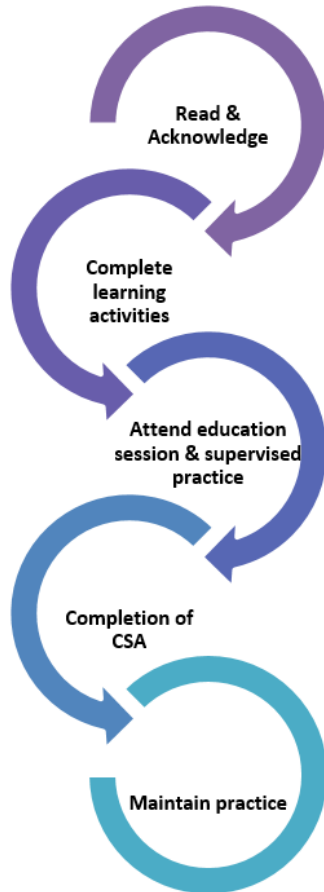
Predictor	0 Points	1 Point	2 Points
Visible Vein	Visible	-	Not visible
Palpable Vein	Palpable	-	Not Palpable
Age	≥ 36 months	12-35 months	< 12 months

[DIVA Scoring Tool \(Difficult Intravenous Access\)](#)

GAUGE and Length	Usual age	Purpose
26 G (NICU) 24 G	Neonates Infants	Most infusions Maintenance infusions Small superficial vessel
22 G (short)	Toddlers and school ages	Most infusions Minimal adiposity
22 G (long)	Toddlers and school ages	Ultrasound guided insertion Excessive adipose tissue Longer required duration of therapy
20 G (short)	Older school age and adolescence	Intraoperative Trauma, fluid resuscitation, Blood sampling on insertion Most infusions Minimal adiposity
20 G (long)	Older school age and adolescence	Ultrasound guided insertion Excessive adipose tissue Longer required duration of therapy
>20 G and up to 14 G	Older school age and adolescence	Intraoperative Trauma, fluid resuscitation, Blood sampling on insertion Most infusions

Appendix 3 - SCHN Nurse Accreditation

SCHN Nurse Accreditation process



- SCHN Peripheral Venous Access – Practice Guideline
- [Intravascular Access Devices – Infection Prevention & Control PD2019_040](#)
- [Peripheral IV Catheters: Placement in Neonates – NETS Practice Guideline](#)
- Aseptic technique module & ANTT Clinical Skill Assessment (CSA) completed
- Invasive Device Protocols module
- SCHN Cannulation Workbook
- Paediatric cannulation & venepuncture program of education
- Perform a minimum of 5 successful cannulations &/or 5 successful venepunctures under supervision of an accredited RN or designated medical officer
- Complete Clinical Skills Assessment (CSA) for Cannulation
- Complete Clinical Skills Assessment (CSA) for Venepuncture – as appropriate
- Read & acknowledge SCHN & NSW Health documents with any policy revision
- Complete Invasive Device Protocols module

- Nurses must practice under the supervision of a senior accredited nurse, CNE/NE/CNS/NP, Anaesthetist or experienced medical staff during the initial accreditation process.
- Initial education in technique must be performed on a mannequin until satisfactory level of skill is obtained before progressing to supervised practice on patients.
- To obtain initial PIVC cannulation accreditation, there must be a minimum of five (5) successful cannulations.
- To obtain initial venepuncture accreditation, there must be a minimum of five (5) successful venepunctures.
- To retain accreditation for PIVC cannulation or venepuncture, the nurse must maintain competency through regular practice and supporting documentation as evidence as required.
- Nurses employed at SCHN with prior venepuncture and intravenous cannulation accreditation from another institution can apply for “Recognition of Prior Learning” with the local CNE/NE and a plan can be developed.
- Accreditation of nurses in intravenous cannulation and/or venepuncture will be recorded in MyHealth Learning.
- The Clinical Nurse Educators, Nurse Educators or delegate of an area where intravenous cannulation and venepuncture occur on a regular basis, are responsible for supporting the nurse during the accreditation program (supporting both theoretical learning and skills acquisition).
- It is the professional responsibility of each nurse to approach the NE/CNE and/or Manager if additional/ongoing training and assessment in this extended skill is identified.
- Reassessment of intravenous cannulation or venepuncture is required only when a new practice change is implemented or as identified for an individual – this may be self-identification or identified by a colleague.

[Intravenous Cannulation and Venepuncture Theoretical Workbook](#)

[Clinical Skills Assessment – Intravenous Cannulation](#)

[Clinical Skills Assessment – Venepuncture](#)

[Record of Practice](#)

Links to resources:

<https://dontforgetthebubbles.com/twelve-tips-to-placing-a-well-secured-peripheral-iv-cannula/>
<https://songsorstories.com/2015/08/15/top-tricks-for-little-pricks/>
<https://forum.nursejanx.com/t/how-to-start-ivs-like-a-boss-advanced-iv-tips-tricks-nursejanx/28/7>

Appendix 4 – Therapeutic hold examples



Courtesy of SCH Emergency Department and Child Life Therapy Department

Appendix 5 – IV WISE patient discussion tool ¹

The IV-WISE patient discussion tool

IV-WISE* lists key discussion points for clinicians and patients, to involve patients in their care and prevent PIVC-related complications:

What clinicians should discuss with patients:	What patients can ask and do:
I Intravenous access needs	
<ul style="list-style-type: none"> Discuss why IV fluids or medicines are needed Explain how the PIVC will be inserted Ask patients about their PIVC history and any current needs. 	<p>Tell your healthcare team about your past experiences including:</p> <ul style="list-style-type: none"> Difficulty inserting a PIVC Anything that has worked well Your preference or any physical problems that could affect where the PIVC is placed Any allergies you have, such as to tapes and dressings.
V Vascular access checks	
<ul style="list-style-type: none"> Advise that the PIVC will be checked regularly Ask patients to report any concerns or any problems they notice (e.g. redness, swelling). 	<ul style="list-style-type: none"> Your clinician will regularly check your PIVC Tell your clinician if you have any concerns or notice any problems.
W What patients can do to reduce the risk of complications	
<ul style="list-style-type: none"> Advise patients what they can do to help reduce the risk of PIVC-related complications and infection Provide patients with the 'Looking after your cannula' information sheet. 	<p>To help to look after your PIVC:</p> <ul style="list-style-type: none"> Protect the PIVC from knocks or being pulled Wear loose clothing so that the PIVC does not get caught Keep the PIVC dry while washing and showering Ensure that the protective dressing stays in place.
I Infection risk	
<ul style="list-style-type: none"> Discuss how to prevent infection. 	<p>To prevent infection:</p> <ul style="list-style-type: none"> Keep your hands clean by washing with soap or using sanitiser Do not touch, fiddle with, or move the device.
S Signs and symptoms of complications	
<ul style="list-style-type: none"> Discuss the signs and symptoms to look out for When removing the PIVC, advise patients that symptoms can occur up to 48 hours later and what to do. 	<p>Tell your clinician as soon as possible about:</p> <ul style="list-style-type: none"> Redness, pain or swelling at the insertion site Feeling hot, cold or shivery Leakage from the device The dressing getting wet, bloodstained or loose.
E Expected removal	
<ul style="list-style-type: none"> Tell patients when the PIVC is expected to be removed (e.g. when therapy is finished). 	<ul style="list-style-type: none"> If your PIVC has not been used in the last 24 hours, ask if you still need it If you are going home and your PIVC is still in place, ask your clinician if it can be removed.

Australian Commission on Safety and Quality in Healthcare Management of Peripheral Intravenous Catheters Clinical Care Standard May 2021 ¹

Appendix 6 - SCHN PIVC Care Prompt Card for Clinicians

TLC: TOUCH, LOOK AND COMPARE FOR PIVC SAFETY

TOUCH

Every **60 minutes** with continuous infusion or
 Every **4 hours** when not in use a nurse will TOUCH
 PIVC should feel:

- Soft
- Dry
- Pain Free
- Warm



LOOK

Every **60 minutes** with continuous infusion or
 every **4 hours** when not in use a nurse will LOOK
 PIVC site should be:

- Visible at the insertion site
- Dry
- Without redness or swelling
- No evidence of rubbing or any parts pressing into the skin



COMPARE

Every **60 minutes** with continuous infusion or
 every **4 hours** when not in use a nurse will COMPARE
 PIVC site should be:

- Same size as the other limb
- Without swelling
- Equal capillary refill in both limbs
- Skin temperatures equal in both limbs



CLINICAL INDICATIONS FOR ASSESSMENT OF IMMEDIATE REMOVAL INCLUDE:

STEP 1 Assess for clinical signs of device failure or extravasation:

- Any pain or tenderness without palpation.
- Changes in colour of surrounding skin (e.g. erythema or blanching).
- Persistent changes in skin temperature at insertion site.
- Oedema.
- Leakage of fluid from insertion site.
- Infiltration or extravasation

STEP 2 Action:

Is extravasation injury suspected?

No → remove PIVC and inform treating team.

Yes → Leave PIVC insitu and refer to Extravasation Guideline for advice on further management.

Is there no signs of PIVC failure but it is not in use?

Consider removal of PIVC



IMPROVING PIVC INSERTION SUCCESS AND MANAGEMENT

IMPROVING PIVC INSERTION

- S** **SKILLS OF THE CLINICIAN**
- Consider the location, skin condition and the conditions of the vein
 - Start with upper limb and avoid areas of flexion e.g. antecubital fossa
 - Smallest gauge that allows flow rate

- U** **UNDERSTAND AND PREPARE**
- What is its intended use?
 - Is there an alternate route e.g. oral
 - Duration and type of therapy
 - Pain relief e.g. sucrose, topical anaesthetic, child life therapy and/or distraction
 - Environment
 - Support staff
 - Set up procedure as per ANTT Risk Assessment (standard/surgical)
 - Review PIVC Access Decision and Escalation Pathway, located in the SCHN Peripheral Intravenous Catheters (PIVC) Practice Guideline

- C** **CONSENT**
- Obtaining verbal consent
 - Involving parents/carers in decision making
 - Provide 'Facts about Cannulass' fact sheet to parents/carers

- C** **CLEAN SITE**
- 20 second scrub with friction and allow to dry completely
 - If re-palpating of site is necessary, consider using surgical ANTT

- E** **ESCALATE**
- As per PIVC guidelines, no more than two attempts per clinician before escalating to a senior clinician or anaesthetics
 - Escalate to a senior clinician as per PIVC Access Decision and Escalation Pathway
 - Consider vein quality and use of guided ultrasound
 - Consider difficult venous access guidelines

- S** **SECURE**
- Ensure site is clean and dry before applying dressings
 - Ensure entry site is visible when securing device
 - Ensure adequate pressure area prevention from PIVC hub.

- S** **SIGN AND DOCUMENT**
- Ensure you have documented procedure in eMR, Interactive View and I and O with date, time, and number of attempts, proceduralist, cannula gauge, site and securement
 - Record hourly with continuous infusions or 4th hourly if not in use

IMPROVING PIVC MANAGEMENT

- P** **PROMPT REMOVAL**
- Evaluate clinical indication daily in consultation with admitting team
 - Remove under ANTT guidelines
 - Document removal and reason for removal

- I** **INSPECT SITE**
- Hourly site checks during continuous infusions
 - 4 hourly site checks when not in use or with intermittent infusions
 - Be aware of extravasation guidelines and refer to IV Extravasation Management Practice Guideline if extravasation identified
 - Use the Touch, Look and Compare (TLC) Framework when conducting site checks.

- V** **VEIN PATENCY**
- Ensure continuous infusions or regular cannula flushes are ordered on eMM
 - Visualise site when administering medication/flushes and consider cannula gauge, site and rate of delivery
 - PIVC should be pain free when delivering intravenous fluids/medications - this could indicate device failure or extravasation

- C** **CLEAN HANDS**
- Use Aseptic Non-Touch Technique (ANTT) Guidelines and remember hand hygiene

- S** **SCRUB THE HUB!**
- Use ANTT Decision Framework for all PIVC procedures.
 - Scrub the hub for 20 seconds and allow drying before access



ENG60751110

Appendix 7 - SCHN PIVC Care Prompt Card for Families

TLC: TOUCH, LOOK AND COMPARE FOR PIVC SAFETY

If your child has an IV infusion at least every hour a Nurse will touch the site, take a look at it and compare it to another area on the child's skin.

The Peripheral Intravenous Cannulas (PIVC) must still be checked even if your child is asleep.



The nurse is checking to make sure the area is:

- Soft
- Dry
- Pain Free
- Free from plastic pressing into the skin
- free from swelling

Please speak to your nurse or doctor if you notice anything wrong or have any questions or concerns

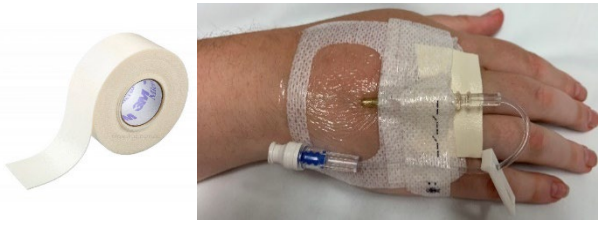



Appendix 8 - Product Reference Guide

PIVC BORDERED DRESSINGS

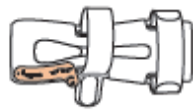
Instructions for use are included in the product packaging and further information can be found on the [IV house website](#) which includes [Instruction videos](#).

Product Description & Product Code	
<p>Tegaderm® IV Advanced Bordered Dressings</p> <p>1683 adult</p>	
<p>Tegaderm® IV Advanced Bordered Dressings</p> <p>1680 neonate</p>	
<p>Tegaderm® IV Advanced Bordered Dressings</p> <p>1682 paediatric</p>	
<p>Tegaderm® IV Advanced Bordered Dressings</p> <p>1683 older children-adults</p>	

<p>Microfoam tape</p> <p>1528-1</p>	<p>Non-sterile foam tape, can be used for placement under PIVC hub to assist in prevention of pressure area development.</p>  <p>The image shows a roll of white microfoam tape on the left. On the right, a close-up shows the tape being applied to a patient's hand, positioned under the hub of a peripheral intravenous catheter (PIVC) to prevent pressure area development.</p>
<p>Sorbaview Shield®</p> <p>Pediatric Peripheral SV26UDT</p> <p>Peripheral SV233UDT</p>	 <p>Paediatric Peripheral Peripheral</p> <p>The image shows two applications of the Sorbaview Shield. The left image shows the shield applied to a child's hand, labeled 'Paediatric Peripheral'. The right image shows the shield applied to an adult's hand, labeled 'Peripheral'. Both images show the clear adhesive shield covering the PIVC hub and surrounding skin.</p>

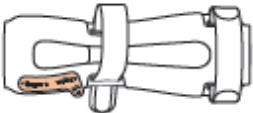
I.V. House Products at a Glance

TLC® Wrist Splint with Straps

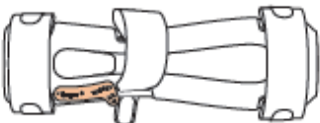


TLC Wrist Splint is also available in a Basic version without straps.

S 939S-Ultra
 Infants 0–12 months, or 2.5–12 kg



M 939M-Ultra
 Toddlers 12–36 months, or 9–15 kg



L 939L-Ultra
 Children 3–10 years, or 12–41 kg



XL 939XL-Ultra
 Youth/Adults 10 years and up, or over 40 kg

TLC® Elbow Splint with Straps



TLC Elbow Splint is also available in a Basic version without straps.

XS 959XS-Ultra
 Newborns 0–4 months, or 2.5–7 kg

S 959S-Ultra
 Infants 4–12 months, or 6–12 kg



M 959M-Ultra
 Toddlers 12–36 months, or 9–15 kg

L 959L-Ultra
 Children 3–10 years, or 12–41 kg

TLC® Foot Splint



XS 949XS-Foot
 Newborns 0–4 months, or 2.5–7 kg



S 949S-Foot
 Infants 4–12 months, or 6–12 kg
 May fit larger infants.
 Nonambulatory infants only.

I.V. House UltraDome®



750LFP Large Dome



727SFP Small Dome

Hand, forearm, AC, foot/ankle, scalp, or other peripheral IV

330 Series I.V. House UltraDressing®



330M Neonates, infants, toddlers, and children*



330L Infants, toddlers, and children*

*May be used on hand, forearm, AC, foot/ankle, or other peripheral IV.

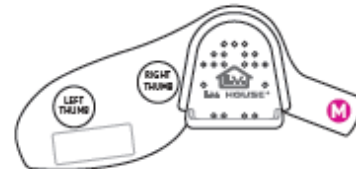
730 Series I.V. House UltraDressing®



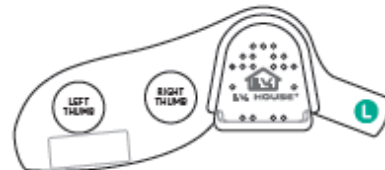
Use hand sizing chart included in I.V. House UltraDressing box for proper fit.



730S Small hand—refer to sizing chart



730M Medium hand—refer to sizing chart



730L Large hand—refer to sizing chart



730Arm All ages; Forearm, AC, foot/ankle, hand, or other peripheral IV

Appendix 9 - References

1. [Australian Commission on Safety and Quality in Healthcare Management of Peripheral Intravenous Catheters Clinical Care Standard May 2021](#)
2. [Peripheral Intravenous \(IV\) catheter insertion for neonates](#), December 2020
3. Children's Health Queensland Hospital and Health Service, Venous Access Device (VAD) Procedure, 2018
4. [Emergency Department Clinical Pathway for Children who Require Vascular Access](#), Children's Hospital of Philadelphia, 2019
5. [Clinical Procedure Safety PD2017_032](#), September 2017
6. Collins, M; Phillips, S; Dougherty, L; De Verteuil, A; Morris, W. (2006). A structured learning programme for venepuncture and cannulation. *Nursing Standard*. V. 20(26): pp 34-40.
7. Derivation of the DIVA score: a clinical prediction rule for the identification of children with difficult intravenous access, Kenneth Yen 1, Anne Riegert, Marc H Gorelick
<https://pubmed.ncbi.nlm.nih.gov/18347490/>
8. Flint, A. McIntosh, d. Davies, M. (2008). Continuous infusion versus intermittent flushing to prevent loss of function of peripheral intravenous catheters used for drug administration in newborn infants (review). *Cochrane Collaboration*. Issue 4, pp1-14.
9. Great Ormond Street Hospital for Children, Peripheral venous cannulation, (2019)
10. Infusion Therapy, Standards of Practice (2016)
11. Milazzo, W. Et al. (2011). Oral sucrose to decrease pain associated with arterial puncture in infants 30 to 35 weeks gestation: A randomized clinical trial. *Advances in Neonatal Care*. V 11 (6). December, pp 406-411.
12. Moureau, N.L, Vessel Health and Preservation: The Right Approach for Vascular Access, 2019, Springer Open.
13. [Australian Commission in Safety and Quality in Healthcare, National Standard for User-applied Labelling of Injectable Medicines, Fluids and Lines](#), 2015
14. NSW Health [Consent to Medical and Healthcare treatment Manual](#) 26 March 2020
15. NSW Health Policy Directive PD2010-058, Infection Prevention and Control. 2010.
16. NSW Health Safety Notice. SN:013/7 Extravasation of Intravenous Fluids.
17. [NSW Health Patient Identification Bands PD2021_033](#), 31 August 2021
18. [Royal Children's Hospital, Intravenous Access – Peripheral Guideline \(2019\)](#)
19. Royal College (RCN). (2016). RCN competencies: an education and training competency framework for peripheral venous cannulation in children and young people. RCN, London.
20. Royal College of Nursing (RNC). (2005). Restricting physical intervention and therapeutic holding for children and young people. RCN, London.
21. Tricia M. Kleidona, B, E, *, Claire M. Rickard B, C, E, Victoria Gibsona, B, Gabor Mihalab, D, F, Jessica A. Schultsa, B, C, Hui (Grace) Xub, E, G, Michelle J. Bauerh, Nicole Marshb, C, E, Emily N. Larsenb, E, Paula Cattanacha, B, Amanda J. Ullmana, Smile - Secure my intravenous line effectively: [A pilot randomised controlled trial of peripheral intravenous catheter securement in paediatrics](#). *Journal of Tissue Viability*, 2020
22. Willcock, J. et al. (2004). Peripheral venepuncture in infants and children. *Nursing Standard*. V.18(27): pp 43-50, 52, 55. *Nursing Standard*. V.18(27): pp 43-50, 52, 55.

Copyright notice and disclaimer:

The use of this document outside Sydney Children's Hospitals Network (SCHN), or its reproduction in whole or in part, is subject to acknowledgement that it is the property of SCHN. SCHN has done everything practicable to make this document accurate, up-to-date and in accordance with accepted legislation and standards at the date of publication. SCHN is not responsible for consequences arising from the use of this document outside SCHN. A current version of this document is only available electronically from the Hospitals. If this document is printed, it is only valid to the date of printing.