

SESLHD PROCEDURE COVER SHEET



Health
South Eastern Sydney
Local Health District

NAME OF DOCUMENT	Peripheral Intravenous Cannulation (PIVC) Insertion, Care and Removal (Adults)
TYPE OF DOCUMENT	Procedure
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EXECUTIVE SPONSOR or EXECUTIVE CLINICAL SPONSOR	Director, Clinical Governance and Medical Services
AUTHOR	SESLHD Infection Prevention and Control Committee and Infection Prevention and Control Policy Sub Committee
POSITION RESPONSIBLE FOR THE DOCUMENT	<p>Infection Prevention and Control Subcommittee</p> <p>SESLHD-InfectionControl@health.nsw.gov.au</p>
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SUMMARY	A local procedure to supplement the NSW Ministry of Health Guideline - Intravascular Access Devices (IVAD) – Infection Prevention & Control PD2019_040.
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Peripheral Intravenous Cannulation (PIVC) Insertion, Care and Removal (Adults)

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1. POLICY STATEMENT

This document is written to complement the NSW Health Policy Directive PD2019_040 - Intravascular Access Devices (IVAD) – Infection Prevention & Control. This document aims to reinforce safe practices whilst addressing local needs and should be used in conjunction with the above directive.

This procedure does not cover the management of PIVC's for children. Please refer to the PIVC Clinical Standards: <https://webapps.schn.health.nsw.gov.au/epolicy/policy/4901>.

2. BACKGROUND

PIVC insertion is one of the most common invasive procedures performed in healthcare settings, with known risks of healthcare associated infections. Multiple attempts at PIVC insertion increases the risk of mechanical and infective complications such as bacteraemia or sepsis. An escalation procedure to minimise this risk must be followed in the event that difficult vascular access is identified and there are two failed cannulation attempts.

Morbidity and mortality risks from PIVCs are reduced when patients are assessed prior to insertion to identify the appropriate route/type of PIVC device suitable for their clinical needs (see Appendix 1.). When cannulation practices are standardised, correct hand hygiene and aseptic technique are followed, and patients are provided with education, risks are further reduced.

3. RESPONSIBILITIES

Only trained and/or experienced clinicians who can demonstrate competency and recognition of prior learning are able to insert a PIVC. Clinicians working towards competency can only insert PIVC's while under the direct supervision of competent clinicians.

These may include:

- Medical Officers
- Medical Radiation Scientists – Radiographers and Nuclear Medicine Technologists
- Registered Nurses / Registered Midwives
- Specialty and extended practice Enrolled Nurses.

All clinicians have a responsibility to ensure the health and safety of patients in regard to the management of PIVC devices. To ensure patient safety standards are sustained, the following roles/responsibilities are clarified:

3.1 Clinical Governance Unit

- Promote safe PIVC insertion, documentation and post insertion care.
- Promote correct PIVC insertion procedure within SESLHD.
- Ensure dissemination and implementation of the procedure within facilities
- Ensure that auditing practices are routinely undertaken.
- Ensure that PIVC related infections are entered into the Incident Management System (ims+) and monitored appropriately.

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3.2 Clinical Stream Managers will:

- Promote safe PIVC insertion, documentation and post insertion care.
- Promote SESLHDPR/577 within their clinical departments.

3.3 General Managers will:

- Ensure successful implementation of SESLHDPR/577 within their organisation(s)
- Ensure there is an unsuccessful insertion escalation procedure developed and implemented for each healthcare facility.
- Ensure that any healthcare-associated *Staphylococcus aureus* bacteraemia related to a PIVC is investigated, and that all PIVC related infections are entered into ims+
- Ensure that all clinical staff inserting PIVCs are adequately trained and assessed in accordance with SESLHDPR/577.

3.4 Nurse Managers/Nurse Unit Managers will:

- Ensure that clinicians working-towards competency are adequately supervised by trained and competent clinicians.
- Ensure the availability of equipment to assist with the safe and effective insertion and management of PIVC's.

3.5 Clinical Nurse Educators/Nurse Educators/Educators will:

- Provide education, training and supervision on the correct and safe procedure for PIVC insertion, management, and documentation.

3.6 Clinicians performing PIVC insertion will:

- Complete education and training on PIVC in accordance with SESLHDPR/577, ensuring knowledge, expertise, and practical skills are maintained.
- Assess each patient for clinical justification and contraindications for PIVC.
- Consider whether other vascular access would be more appropriate based on duration and types of therapy.
- Assess each patient for the most suitable site for cannulation.
- Identify the patient, check for allergies, explain the procedure, obtain verbal consent.
- Provide the patient with education on their PIVC and advise them on their role in reducing the risk of device-related complications.
- Maintain aseptic technique during PIVC insertion, access, and removal. Refer to local escalation protocols in the event of two unsuccessful attempts.
- Ensure documentation is carried out as per SESLHDPR/577.

3.7 Clinicians caring for patients with PIVC's will:

- Inspect the cannulation site at least once every shift (8th hourly).
- Use standard precautions and aseptic technique when accessing/caring for the PIVC.
- Check for patency (by flushing) at intervals according to local policy, to minimise risk of device failure.
- Review and document the clinical need for the PIVC at least daily.

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- Promptly remove PIVC's when no longer clinically indicated, or at the first sign of malfunction or local site complications (pain, redness, inflammation).
- Please refer to “**4.7 PIVC documentation (post insertion)**” for further documentation requirements.

4. PROCEDURE

4.1 Infection Prevention and Control Principles

The prevention of infection is important in optimising outcomes and minimising risks associated with the use of PIVCs. These elements include but are not limited to: the use of personal protective equipment, hand hygiene, aseptic technique, and correct disposal of equipment and medical waste.

4.2 Aseptic Technique

- Refer to SESLHDPD/271 - Aseptic Technique policy.

4.3 Work Health and Safety

- The use of safety needle devices and closed Intravenous Therapy (IVT) systems should be implemented and the correct disposal of sharps and medical waste followed
- Ensure the correct use of PPE for insertion, access, and removal to prevent occupational exposures.

4.4 Patient and vein assessment and site selection (see Appendix 1)

- Check for contraindications e.g. arteriovenous (AV) fistula, lymph node clearance history, presence of thrombus/phlebitis, impaired circulation, implantable devices e.g. TIVADs etc.
- Avoid lower limbs, areas of flexion, and the anterior aspect of the wrist. Select a vein, suitable to cannula size and therapy required. The smallest size IVC appropriate to therapy should be used
- Select the most distal area of the vein appropriate allowing subsequent cannulations to progress proximally
- Ensure device selection is suitable to therapy required and consider alternative venous access:
 - If intravenous therapy is to continue for longer than six days
 - If the patient has poor venous access
 - Multi-lumen access required
 - Treatment includes administration of vesicant solutions, (i.e. solutions that if infiltrated by escaping the vein are capable of causing pain, ulceration, necrosis and sloughing of damaged tissue) consideration must be given to referring the patient for insertion of an alternate vascular access device such as a Midline or Central Venous Access Device. These alternate devices should be considered where ongoing infusion of solutions with a pH range outside of 5-9 or an osmolality greater than 500 mOsmols/L are prescribed.

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4.5 Escalation of difficult PIVC access

- When difficult vascular access has been identified and a maximum of two failed attempts have occurred or when complications arise and the patient deteriorates, escalation procedures to minimise patient harm should be initiated. Refer to Appendix 3 for local protocols.

4.6 Flushing of PIVC and post insertion care

- Use sterile 0.9% saline for injection in a 10ml syringe to flush PIVC after insertion, before and after each medication/infusion is given, at a minimum eight hourly if not otherwise used.
- Document flushes as per local protocols on medication chart/ eMEDs.
- If the PIVC is being accessed more than twice a day, a continuous infusion to 'keep vein open' (KVO) should be maintained, unless contraindicated. Contraindications to KVO infusion should be documented in the patient's medical record.
- PIVC continuous infusions should be maintained as closed systems.
- To minimise discomfort and avoid potential dislodgement, infection or occlusion of site, no temporary disconnections to be performed (e.g. showering, transfers, mobilisation).
- If the intravenous fluid closed system is disconnected for any reason it MUST be discarded and a new system prepared to connect.

4.7 PIVC documentation (post-insertion)

- Phlebitis or inflammation of the vein usually results from trauma of cannulation or ongoing administration of medications and fluids which irritate the vein. Signs include localised redness and swelling, pain along length of vein and vein feeling hard and cord-like. A VIP score is utilised to monitor the patient for phlebitis. If a cannula has a VIP of two or more it must be removed, otherwise this may lead to more severe complications such as localised infection, sepsis, and necrosis.
- In the event that a localised or systemic infection is diagnosed an ims+ must be entered. SESLHDPD/280 - Mandatory reporting requirements of peripheral intravenous cannula (PIVC) infection phlebitis in the incident information management systems (IMS+)
- The VIP score must be completed once per shift (8 hours) & documented in the patient's medical record.

Documentation for General Wards

- iView documentation for insertion – this includes completion of the label and all tabs including date, time of insertion, size and location/site of device, inserter details, number of attempts, dressing, indication, ANTT and VIP score are recorded post procedure.
- iView for ongoing review - this includes completing the PIVC dressing intact, patent and capped tabs, VIP score and if PIVC is still required.
- iView for removal - this includes completing the removed date/time, removal location and removed by tabs and then inactivating the cannula on iView

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- Cannula dressing - date and time of insertion must be written on the dressing at time of insertion.
- Additional information required in the eMR nursing progress notes includes but is not limited to:
 - Interventions taken if VIP score exceeds 2 or more or if infection is suspected.
 - Post removal observations.
- If device exceeds dwell time of 72 hours, a medical officer must document a rationale to leave the device in situ and include a plan to resite. Options within the escalation pathway should be exhausted before a decision is made to leave a device in situ for more than 72 hours.

Documentation for Intensive Care Units

- PIVC documentation requirements post insertion for ICU include documenting using:
 - eRIC for insertion – Complete the PIVC insertion form including label and all tabs.
 - eRIC for ongoing review – Complete the V.I.P template each shift.
 - eRIC for removal – Select the stop on the line duration form.
 - Document on cannula dressing - date and time of insertion.
 - Additional information required in the eRIC nursing progress notes includes but is not limited to:
 - how many attempts were taken to successfully cannulate and information regarding escalation pathway if attempts were unsuccessful.
 - Interventions taken if VIP score exceeds 2 or if infection is suspected.
 - post removal observations.

4.8 Indications for routine removal of PIVC and post-removal documentation

- The PIVC should be reviewed daily to determine whether it is still required. Standard precautions must be used during removal of PIVC.
- Situations where the routine removal of PIVC should be considered (in consultation with the treating team) include [With exception to PIVC inserted at SGH that meet the **DIVA criteria**, refer to SGH TSH BR 691 - Peripheral Intravenous Cannulation (sterile insertion) - Clinically Indicated Dwell Time For DIVA (difficult intravenous access)]
 - When IV medications/fluids are no longer required.
 - When (VIP) score exceeds 2.
 - When local infection or sepsis is suspected.
 - When insertion date cannot be determined from iView or eRIC (ICU staff)
 - When PIVC was inserted in an emergency situation or by ambulance, and dwell time exceeds 24 hours, and there is no medical officer documentation indicating device should be left *in situ*.
 - When device exceeds dwell time of 72 hours and there is no medical officer documentation indicating that the device should be left *in situ*.
- Removal details, including date and time must be documented in iView or eRIC (ICU staff).
- PIVC documentation from ICU is included in eRIC discharge documentation.
- Condition of PIVC site at time of removal should be documented in iView comments section including reason for removal.

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- Ongoing monitoring of the PIVC site for at least 48 hours post-removal should also be documented in clinical notes.

4.9 Patient Information Brochures

- Patient Information brochures should be made available to every patient requiring PIVC insertion.
- Caring for your Cannula brochures are available in multiple translations.

4.10 Discharge Planning with a PIVC In Situ

PIVCs should not be left *in situ* post discharge unless documented arrangements have been made. In the rare exception that this occurs; there must be a documented plan in place for ongoing monitoring and removal of the PIVC. The patient should be provided with Caring for your Cannula brochures and be supplied with information about their PIVC and who will be responsible for their PIVC dressings, care and administration of therapy and removal.

4.11 Ims+ Follow-up of PIVC Site Infections

As per: SESLHDPD/280 - Mandatory reporting requirements of peripheral intravenous cannula (PIVC) infection phlebitis in the incident information management systems (IIMS).

5. AUDIT

National Standard 3 audits as per individual facility audit schedules.

6. VERSION AND APPROVAL HISTORY

Date	Version No.	Author and approval notes
December 2009	0	Monika Kebsch, Nurse Manager, Workforce, St Vincent's' Hospital Approval granted in October 2009 at the Area Clinical Council meeting
January 2013	1	Inclusion of additional wording removal as soon as possible after they are no longer clinically required in the policy statement as approved by the Infection Control Consultants Forum and recommended by St George Hospital SAC report (1342511-20)
February 2017	2	Endorsed by Executive Sponsor for Draft for Comment
May 2017	2	Submitted to MES for review and approval prior to submission to SESLHD Clinical and Quality Council for endorsement
June 2017	2	Approved by Clinical and Quality Council

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December 2020	3	Minor review. Escalation of difficult PIVC and PIVC documentation post insertion. Update of references.
May 2021	3	Approved by Executive Sponsor.
July 2021	4	Minor review: monitoring of PIVC site for 48hrs post removal. Change endorsed by the SESLHD Infection Prevention and Control Committee. Approved by Executive Sponsor.
May 2022	5	Minor review. Escalation of difficult PIVC access, PIVC documentation post insertion. Included information around SGH process in Section 4.8. Updated references. Approved by Executive Sponsor.
2 October 2024	5.1	Minor review. Updating of hospital specific escalation process.

7. REFERENCES

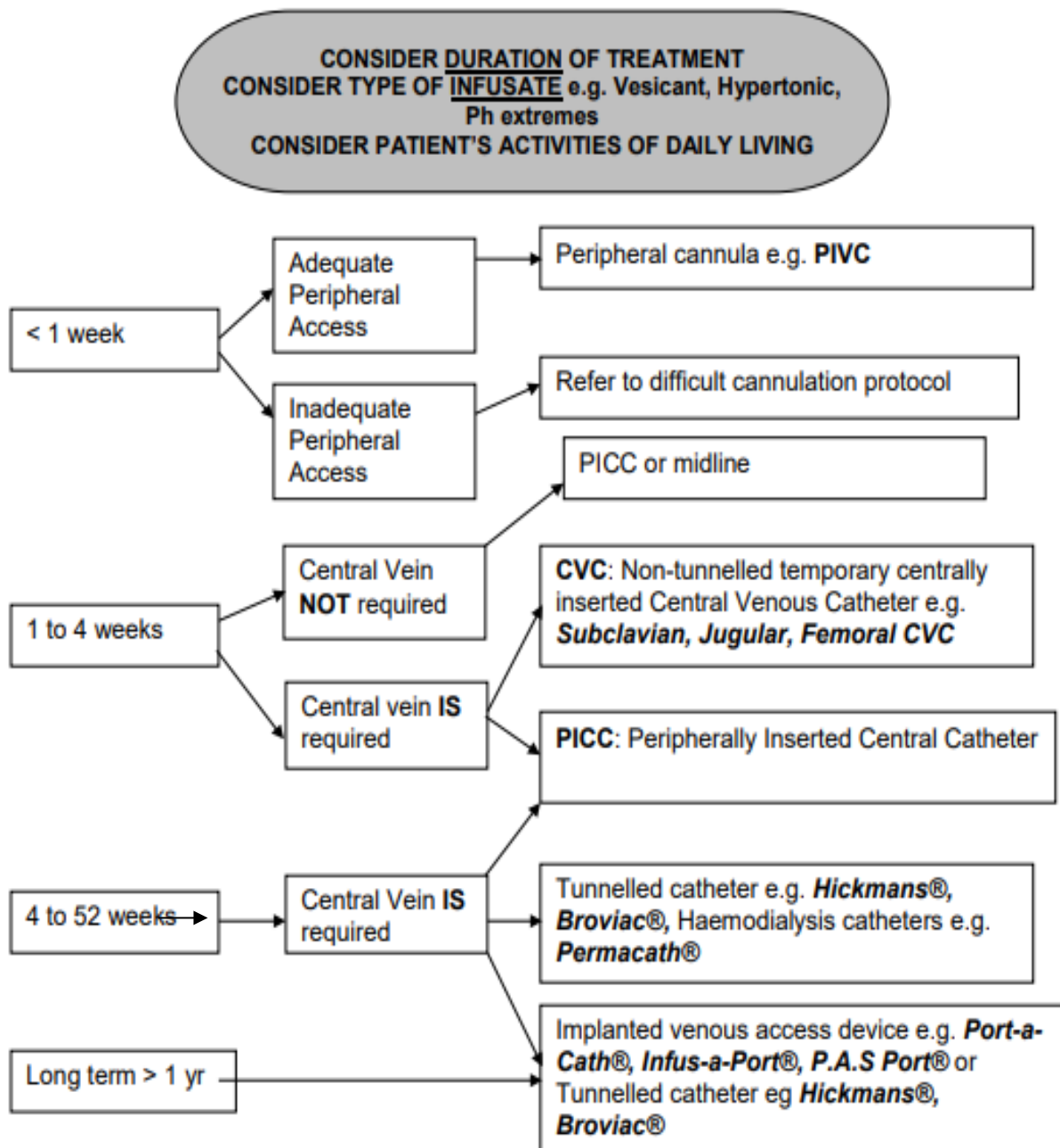
- NSW Health Policy Directive PD2019_040 - Intravascular Access Devices (IVAD) - Infection Prevention and Control
- [NSW Health Policy Directive PD2023_025 - Infection Prevention and Control Policy](#)
- [Clinical Excellence Commission - Infection Prevention and Control Handbook 2020.](#)
- [SESLHDPD/280 - Mandatory reporting requirements of peripheral intravenous cannula \(PIVC\) or /central venous access device \(CVAD\) infections in the incident information management systems \(IIMS\)](#)
- [SGH-TSH CLIN038 - Peripheral Intravenous Cannulation - Accreditation Process](#)
- [SESLHDPR/470 - Sodium chloride 0.9% intravenous \(IV\) flush](#)
- Clinical Excellence Commission 2015. National Standard for User-Applied Labelling of Injectable Medicines, Fluids and Lines
- Caring for your Cannula brochures
- Australian Guidelines for the Prevention and Control of Infection Prevention in Healthcare
- <https://www.nhmrc.gov.au/about-us/publications/australian-guidelines-prevention-and-control-infection-healthcare-2019>
- Sydney Children's Hospital Network., (2022) Peripheral Intravenous Catheters – Clinical Standards. <https://webapps.schn.health.nsw.gov.au/epolicy/policy/4901>
- [SGH CLIN691 peripheral intravenous cannulation \(sterile insertion\) - clinically indicated dwell time for diva \(difficult intravenous access\)](#)

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Appendix 1: Appropriate device selection



CONSIDER REFERRAL & SERVICE / DEPARTMENT TO INSERT DEVICE
Accredited nursing staff and medical staff for cannulation, Vascular Surgeon's, Intensive Care Registrars/Residents, Interventional Radiologist, and Clinical Nurse Consultants for cannulation and PICCs

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Appendix 2 – Visual Infusion Phlebitis Score (VIP score)

V.I.P. Score (Visual Infusion Phlebitis Score) Developed by Andrew Jackson, 1997		
0	I.V site appears healthy	No signs of Phlebitis Observe Cannula
1	One of the following is evident Slight pain near I.V. site or slight redness near I.V.site	Possible first signs of phlebitis Observe Cannula
2	Two of the following is evident Pain near I.V. site Erythema Swelling	Early stage of phlebitis Resite cannula
3	All of the following are evident Pain along path of cannula Erythema Induration	Medium stage of phlebitis • Resite cannula Consider treatment
4	The following are evident and extensive Pain along path of cannula Erythema Swelling Palpable venous cord Pyrexia	Advanced stage of phlebitis (or start of thrombophlebitis) • Resite cannula Consider treatment
5	All of the following are evident and extensive: Pain along the path of the cannula Erythema Swelling Palpable venous cord Pyrexia	Advanced stage of thrombophlebitis • Initiate treatment • Resite cannula

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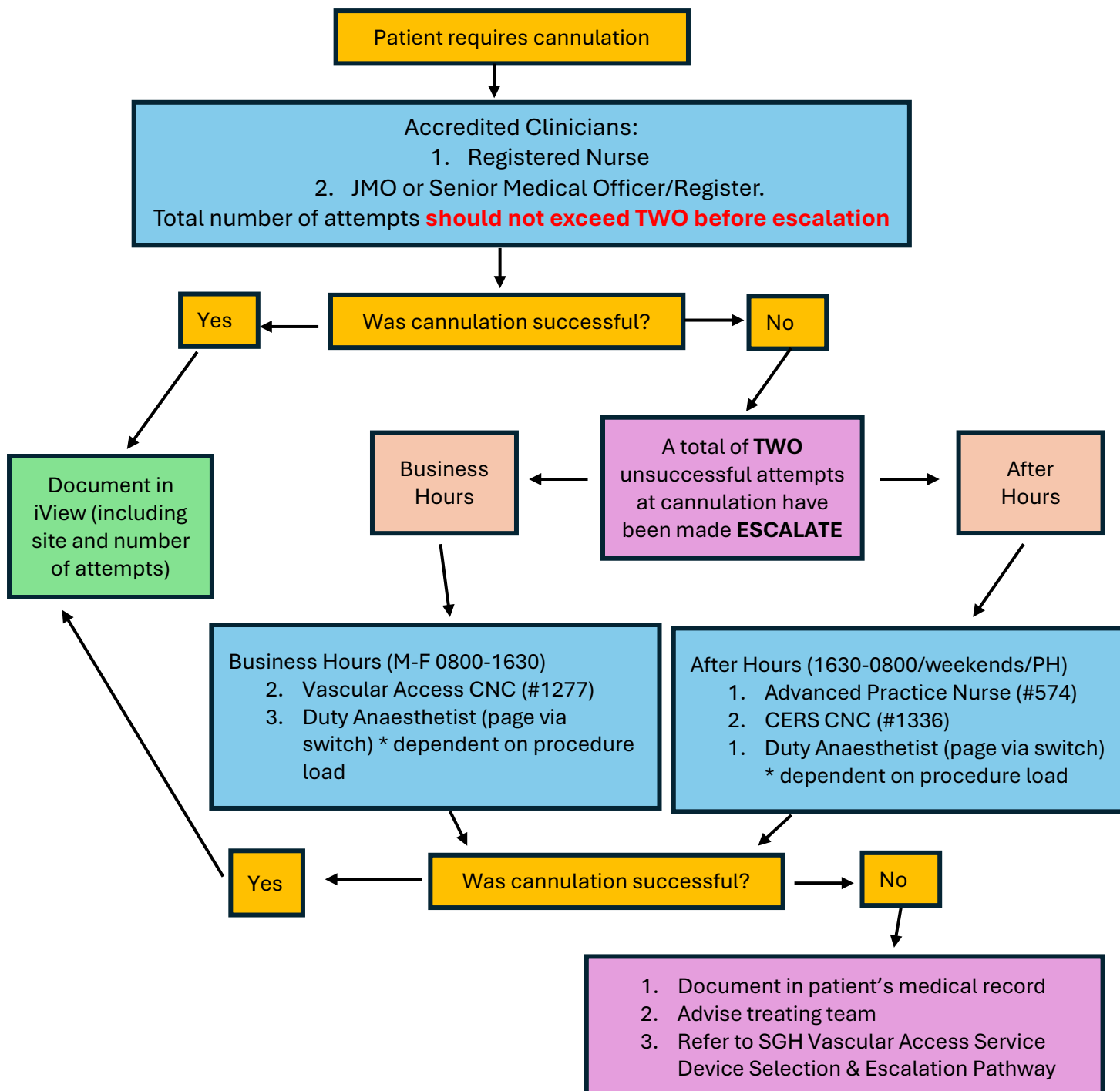
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Appendix 3 – Local Escalation plans St George Hospital

PRIOR TO ATTEMPTING CANNULATION, PLEASE CONSIDER:

1. Is a peripheral cannula the most appropriate device for intended therapy?
2. How long is the therapy intended for?
3. Are there any patient factors that indicate a peripheral cannula may not be the most appropriate device? E.g.: needle phobia, limb exclusion (surgery / nodal clearance / amputation / hemiparesis / fistula)
4. Does the patient have known difficult venous access?



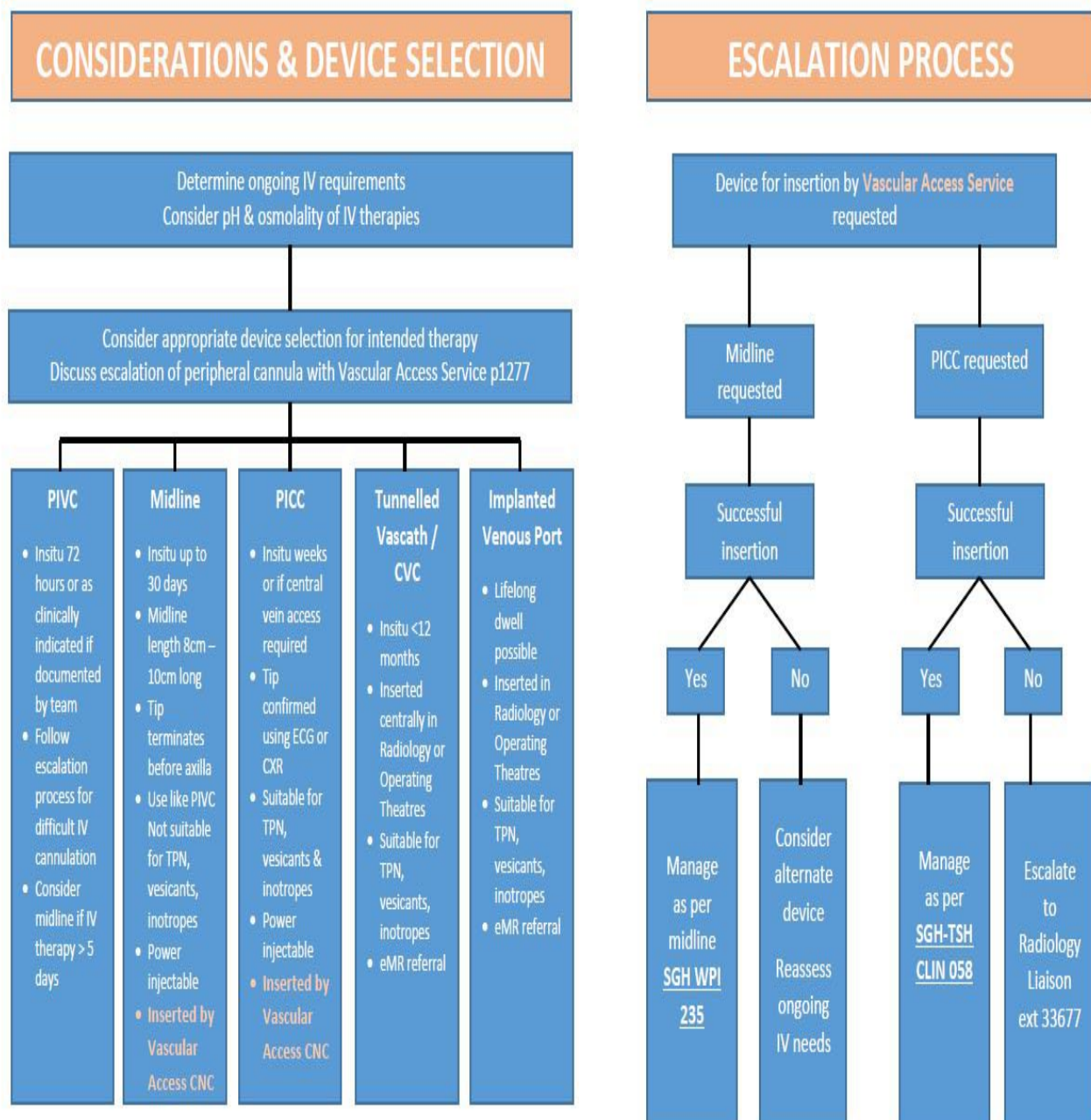
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Appendix 4 - St George Hospital Vascular Access Selection & Insertion Pathway

Vascular Access Selection & Insertion Pathway



Peripheral Intravenous Cannulation (PIVC)
Insertion, Care and Removal (Adults)

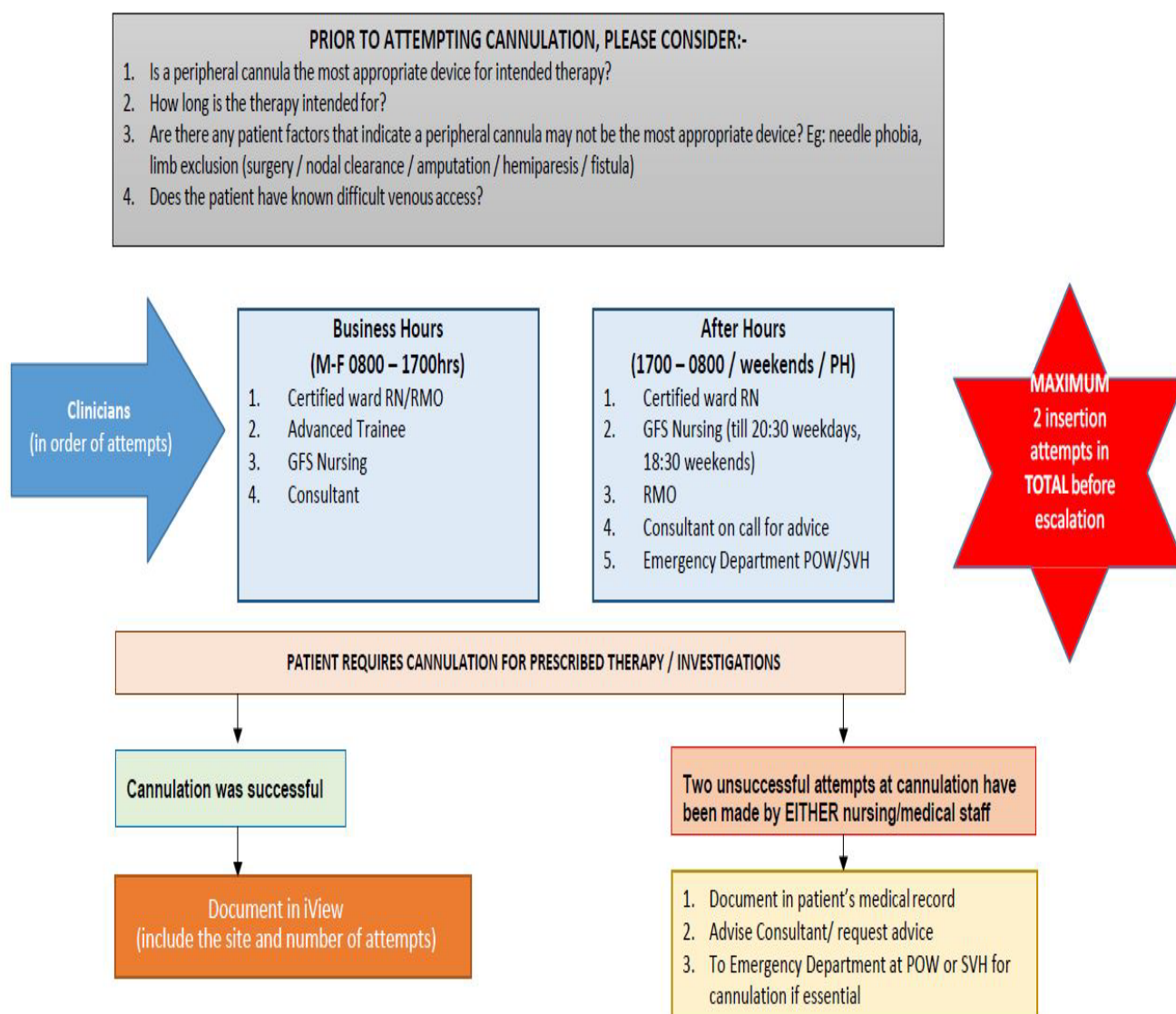
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Appendix 5 - Local Escalation Plans War Memorial Hospital

War Memorial Hospital



Cannulation Pathway Flowchart as per <https://www.seslhd.health.nsw.gov.au/sites/default/files/documents/SESLHDPR577.pdf>

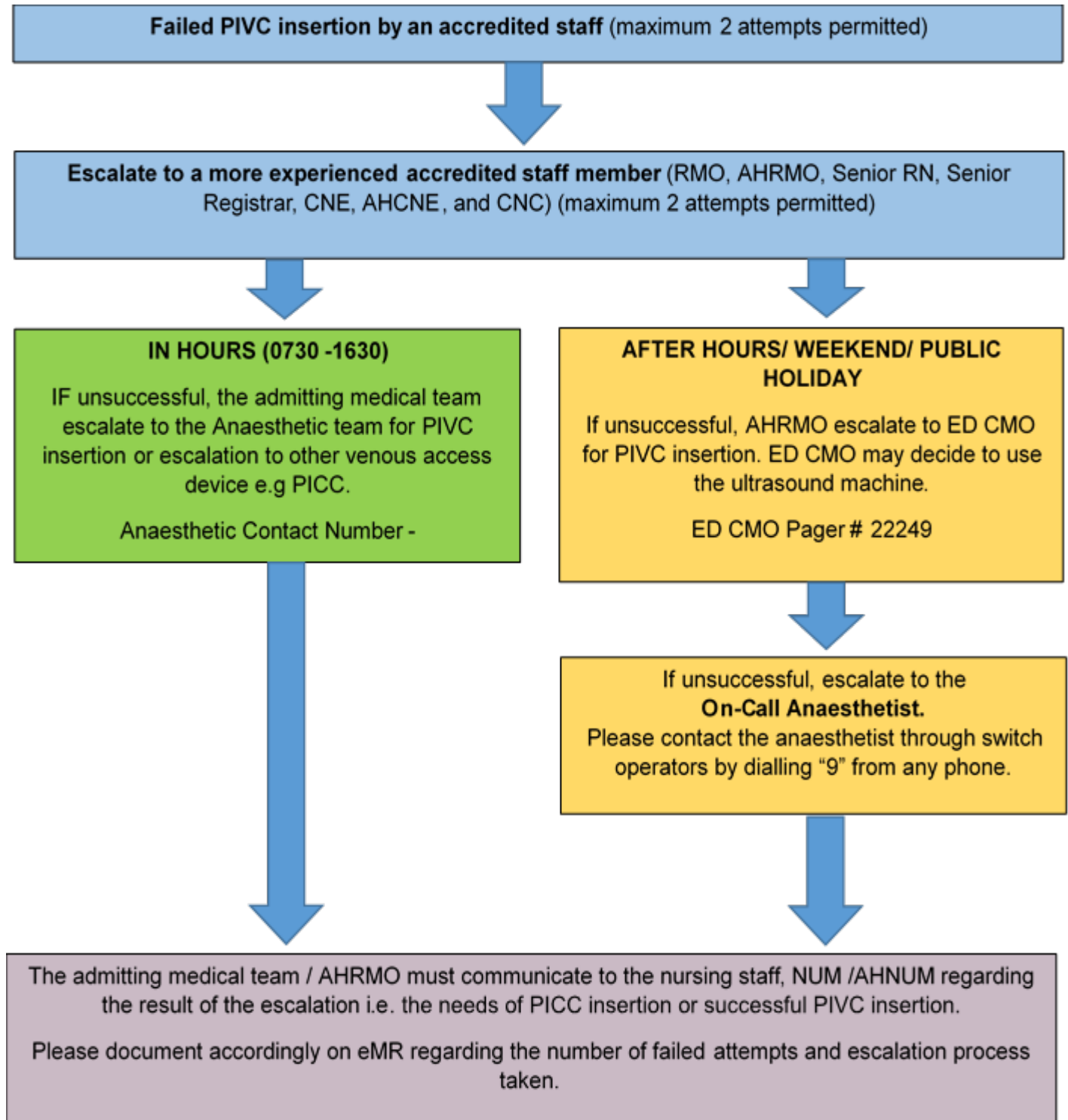


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Appendix 6 - Local Escalation Plans Sydney/ Sydney Eye Hospital



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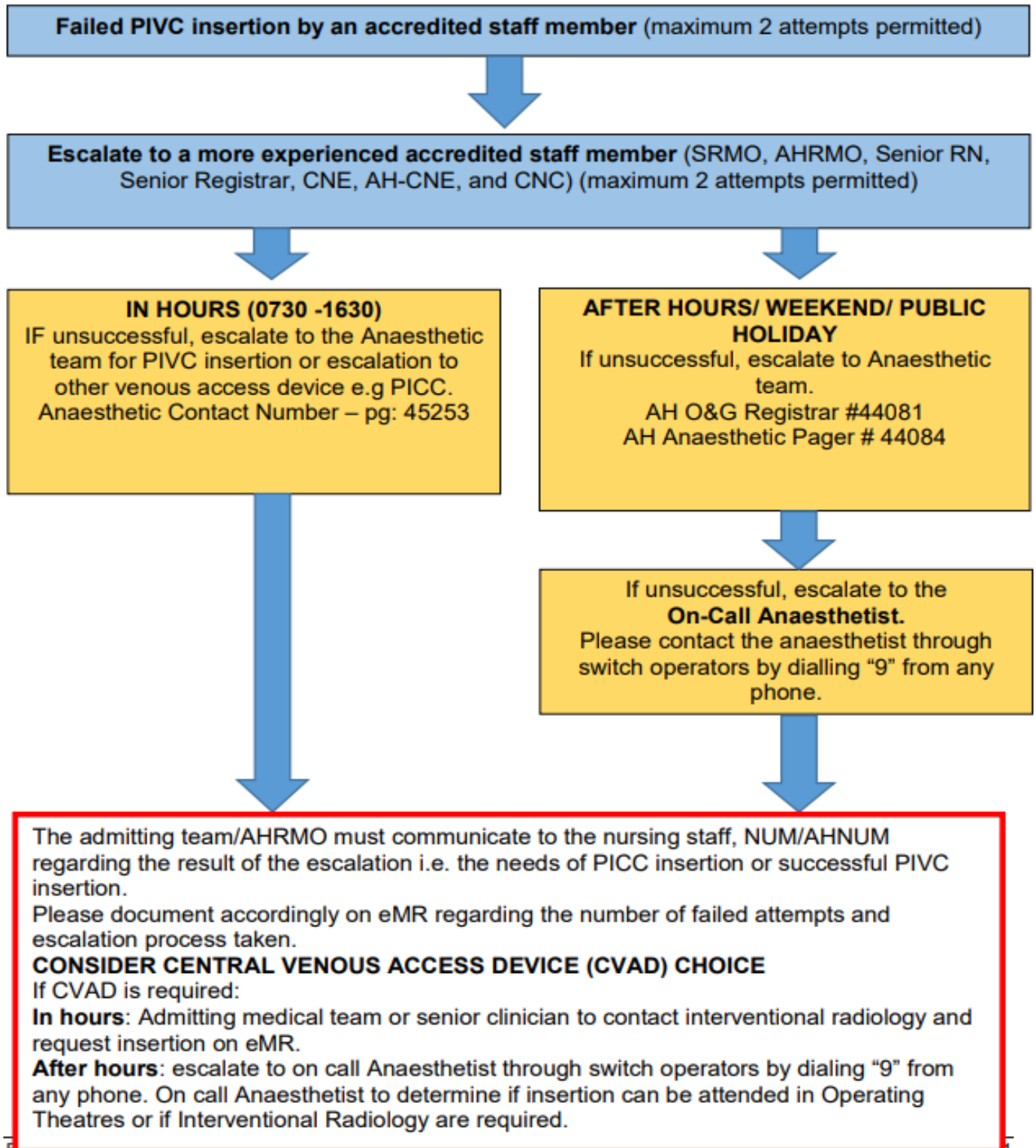
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Appendix 7- Local Escalation Plans Royal Hospital for Women



RHW PIVC ESCALATION PROCESS



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Appendix 8 - Local Escalation Plans. The Sutherland Hospital

Failed Peripheral Cannulation (PIVC) by accredited staff member after 2 attempts



Escalate to more experienced staff member (team registrar, AH MOIC, or staff member trained in ultrasound technology)



Unsuccessful



Contact AHCERS CNC (12PM-12AM)



Unsuccessful

Contact AMO re patient's long term care plan
Ongoing intravenous access required?

Yes



Central venous access required?



Yes



Contact radiology in hours

No



Intravenous access required urgently?

No



Discuss with AMO
re vascular access plan

Yes



Contact anaesthetics or ICU (2 attempts only)
rediscuss with AMO if unsuccessful

No



Patient is not for further IV therapy.
Document all actions in medical record
and inform nursing staff

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Appendix 9 - Local Escalation Plans Prince of Wales

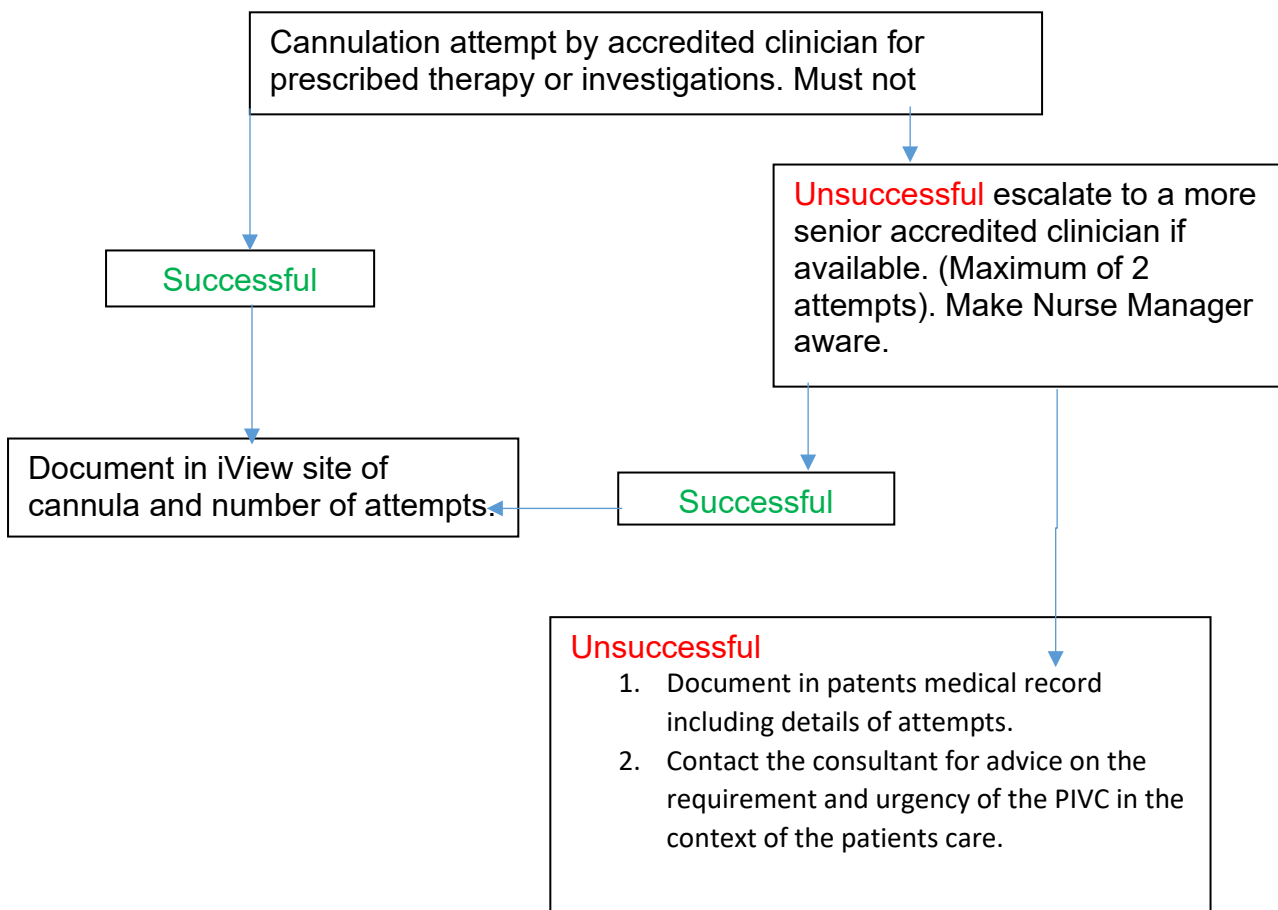


Prior to attempting Cannulation, Please consider:

1. Is a peripheral cannula the most appropriate device for the intended therapy
2. How long is the therapy intended for?
3. Are there any patient factors that indicate a peripheral cannula may not be the most appropriate device E.g. needle phobia, limb exclusion (Surgery / nodal clearance / amputation / hemiparesis / fistula)
4. Does the patient have known difficult venous access.

Maximum 2 insertion attempts before escalation

If the patient has a history of difficult venous access or first cannulation attempt has failed consider the use of the vein visualisation system (AccuVein) with a trained clinician.



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Appendix 10 - Local Escalation Plans Prince of Wales

