

NEONATAL VASCULAR ACCESS DEVICE SELECTION

Choosing the Right Device for the Right Neonatal Patient

STEP 1 What therapy is required?



PERIPHERAL-COMPATIBLE THERAPY

- Non-vesicant medications
- Non-irritant medications
- Peripheral-compatible fluids
- Short-term intravenous access.



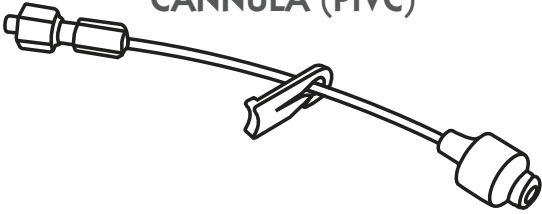
CENTRAL THERAPY REQUIRED

- Parenteral nutrition (PN)
- Hyperosmolar solutions
- Multiple continuous infusions
- Medications requiring central administration
- Long-term intravenous therapy.

STEP 2 How long is therapy expected to last?

≤ 5-7 DAYS

SHORT PERIPHERAL IV CANNULA (PIVC)



Suitable For:

- Brief treatment courses
- Intermittent medication administration
- Short-term hydration.



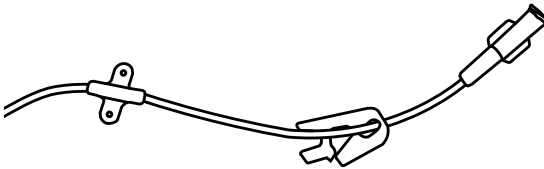
Minimally invasive



Reassess daily if therapy is continuing

1-4 WEEKS

CONSIDER MIDLINE CATHETER



Suitable For:

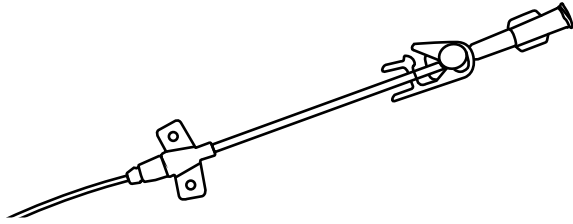
- Intermediate-duration therapy
- Peripheral-compatible medications
- Difficult peripheral access
- Need to reduce repeated cannulation attempts.

Benefits

- ☒ Longer dwell time than PIVC
- ☒ Fewer re-siting procedures
- ☒ Supports vessel preservation

> 1-2 WEEKS OR COMPLEX THERAPY

CONSIDER PICC



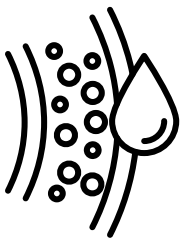
Suitable For:

- Parenteral nutrition
- Extended intravenous therapy
- Multiple infusions
- Limited venous access
- Patients expected to require prolonged treatment.

Benefits

- ☒ Reliable central access
- ☒ Reduced need for repeated cannulation
- ☒ Supports long-term therapy delivery

STEP 3 Assess Vessel Health



- Have multiple cannulation attempts already occurred?
- Are suitable veins becoming limited?
- Does the infant have ongoing treatment needs?
- Will further vascular access likely be required?



If YES, consider escalation to a device that better supports vessel preservation.

STEP 4 Daily Review



- ☒ Is the device still clinically indicated?
- ☒ Is therapy progressing as expected?
- ☒ Are there signs of complications?
- ☒ Is removal now appropriate?

KEY PRINCIPLES OF NEONATAL VASCULAR ACCESS



Right Patient

Consider gestation, diagnosis and anticipated care pathway.



Right Device

Match the device to therapy requirements.



Right Vein

Preserve healthy vessels whenever possible.



Right Time

Escalate early when prolonged therapy is anticipated.

EVERY VEIN MATTERS



Proactive vascular access planning can help reduce repeated cannulation, preserve vessel health and support successful neonatal outcomes.

References

1. Sharpe EL, Wyckoff MM, Pettit J, et al. Peripherally Inserted Central Catheters: Guideline for Practice. 4th ed. Chicago (IL): National Association of Neonatal Nurses; 2024.
2. Sharpe EL, Pettit J. NANN neonatal peripherally inserted central catheters: clinical practice update. Adv Neonatal Care. 2024;24(4):e95-e107.
3. Infusion Nurses Society. Infusion Therapy Standards of Practice. 9th ed. Norwood (MA): Infusion Nurses Society; 2024

Always follow your local policy and clinical guidelines and use clinical judgement for each patient.