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Le raccomandazioni NEVAT per l'accesso venoso nel neonato

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Vascular access in the newborn: a position paper of Neonatal European Vascular Access Teams (NEVAT)

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Abstract

Vascular access is a cornerstone of neonatal intensive care, yet current practice remains heterogeneous due to the lack of harmonized international guidelines. In this article, we present a position paper developed by a group of European experts — the Neonatal European Vascular Access Teams (NEVAT) — designed as a guide in planning, inserting, and maintaining vascular access in neonates. The position paper was developed using a not anonymous consensus method. Seven working groups prepared preliminary drafts on seven specific topics: peripheral venous devices, umbilical catheters, epicutaneo-cava catheters, ultrasound-guided central catheters, intraosseous access, peripheral arterial catheters, and infusion line management. The drafts were analyzed, modified, and validated through multiple rounds of open discussion, until full agreement was reached. The resulting position paper advocates a proactive, individualized, and standardized approach. Key elements include evidence-based selection of the device, structured preprocedural evaluation, maximal aseptic precautions, systematic use of ultrasound, securement with cyanoacrylate and semipermeable dressings, and structured post-insertion surveillance. Infusion line management emphasizes the use of closed systems, passive disinfection caps, and checklists. The NEVAT developed this position paper with the purpose of combining best evidence with expert agreement, so as to reduce variability in clinical practice, enhance safety, and improve neonatal outcomes, while encouraging multidisciplinary collaboration and family-centered care.

What is Known:

- Neonates are highly vulnerable to vascular access complications, but current practice is heterogeneous, with limited evidence-based guidance and significant variability across NICUs.

What is New:

- The NEVAT group provides the first European position paper on neonatal vascular access, aiming to improve homogeneity in device selection, insertion, and maintenance, promoting a safer and more consistent care.

Keywords Vascular access · Neonatal intensive care unit · Central venous catheter · Critically ill neonates

Abbreviations

CICC	Centrally inserted central catheter
CHG	Chlorhexidine gluconate
ECC	Epicutaneo-cava catheter
FICC	Femorally inserted central catheters

IO	Intraosseous access
MVTR	Moisture vapor transmission rate
NIR	Near-infrared technology
NEVAT	Neonatal European Vascular Access Teams
n-PICC	Neonatal peripherally inserted central catheter
n-SPC	Neonatal short peripheral catheter
n-LPC	Neonatal long peripheral catheter
PVAD	Peripheral venous access device
RaCeVA	Rapid Central Vein Assessment
RaFeVA	Rapid Femoral Vein Assessment
RaPeVA	Rapid Peripheral Vein Assessment
RaSuVA	Rapid Superficial Vein Assessment
SVC	Superior vena cava
UAC	Umbilical arterial catheter
UVC	Umbilical venous catheter
VAMP	Vascular access management plan

Communicated by Daniele De Luca

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Background del lavoro

Pratica clinica eterogenea

Significativa variabilità nella pratica clinica tra le TIN europee per indicazioni, tecniche di inserzione e protocolli di sorveglianza.

Assenza di linee guida

Mancano linee guida internazionali dedicate all'accesso vascolare neonatale. Esiste un divario significativo tra evidenze e pratica clinica.

Popolazione vulnerabile

I neonati — specie i prematuri — sono particolarmente esposti al rischio di complicanze.

L'impegno del NEVAT

Il gruppo NEVAT (Neonatal European Vascular Access Teams) — un network aperto di ricercatori e clinici europei — ha prodotto una serie di raccomandazioni con l'obiettivo di uniformare la pratica clinica nelle TIN europee. Un *Summary* di questo lavoro è stato pubblicato su *European Journal of Pediatrics* (2026).

Metodologia: Quaker-Based Consensus

1

Divisione in Working Groups

10 gruppi tematici: ogni gruppo ha preparato una bozza preliminare sul proprio topic

2

Discussione interna al gruppo

Un coordinatore ha guidato la discussione all'interno di ciascun working group fino a una formulazione condivisa

3

Sessione plenaria

Tutti i gruppi si sono riuniti; i coordinatori hanno presentato le bozze.

4

Rounds di discussione

Discussione e modifica fino al raggiungimento di un consenso condiviso

5

Revisione finale

Revisione degli statements da parte di tutti gli autori

⚠ Nota: Nessun sistema formale di grading (GRADE / RAND-UCLA). Il documento riflette consenso esperto.

Il Progetto delle raccomandazioni NEVAT

I 7 principali Working Groups

- 1 Accessi venosi periferici
- 2 Cateteri ombelicali (CVO / CAO)
- 3 Cateteri epicutaneo-cava (ECC / n-PICC)
- 4 Accessi centrali ecoguidati (CICC / FICC)
- 5 Accesso intraosseo
- 6 Cateteri arteriosi periferici
- 7 Gestione delle linee infusionali

Il Framework VAMP e i 7 rights of VA

VAMP — Vascular Access Management Plan

Framework proattivo e centrato sul paziente per pianificare, inserire e gestire ogni accesso vascolare nel neonato.



Right Patient

Valutazione clinica e delle necessità infusionali



Right Care Team

Team multidisciplinare qualificato



Right Comfort

Analgesia e sedazione appropriate



Right Device

Dispositivo appropriato per tipo di infusione e durata prevista



Right Vessels

Scelta dei vasi con protocolli standardizzati



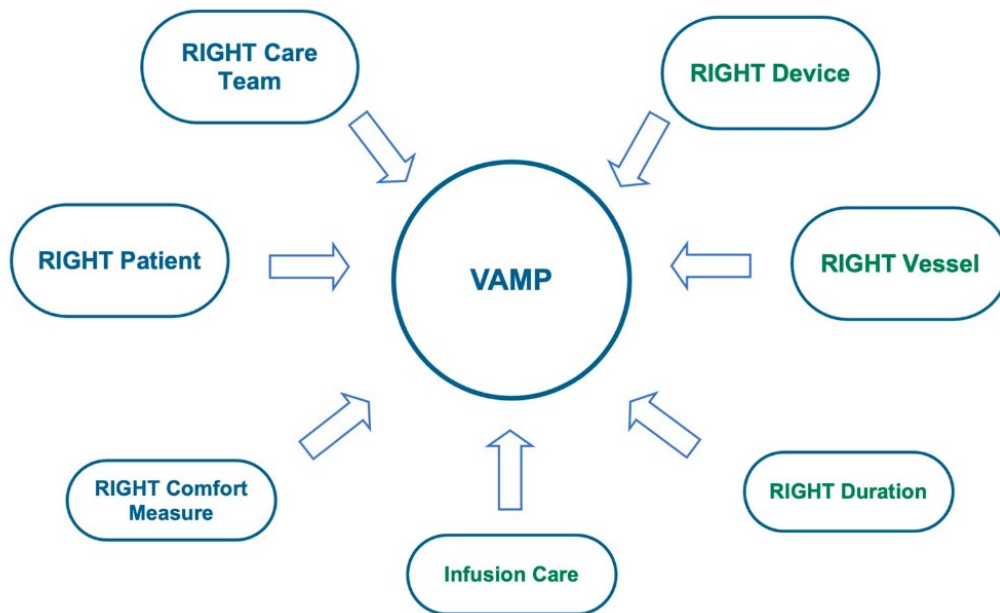
Right Infusion Care

Gestione corretta della linea infusionale



Right Duration

Rimozione tempestiva quando non più necessario



The NAVIGATE project: A GloVANet–WoCoVA position statement on the nomenclature for vascular access devices

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Alessandro Crocoli⁵, Fulvio Pinelli⁶, Mauro Pittiruti⁷, on behalf of the WoCoVA
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REVIEW



The neonatal DAV-expert algorithm: a GAVeCeLT/GAVePed consensus for the choice of the most appropriate venous access in newborns

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Accessi Venosi Periferici (PVAD)

Classificazione neonatale NAVIGATE paper— basata sulla lunghezza con cut-off specifici per il neonato

n-SPC

- Lunghezza < 2 cm
- Gauge: tipicamente 24–26 G
- Tecnica: Catheter over the needle $\pm$ NIR/RaSuVA
- Durata prevista: < 72 ore
- **Tasso di fallimento: può superare il 40%**

n-LPC

- Lunghezza 2–6 cm (detto anche mini-midline)
- Poliuretano fino a 2 Fr
- Tecnica: Seldinger diretto o modificato $\pm$ NIR/RaSuVA
- Durata prevista: > 72 ore
- **Evitare safena e fosse antecubitale (riservate all'accesso centrale)**

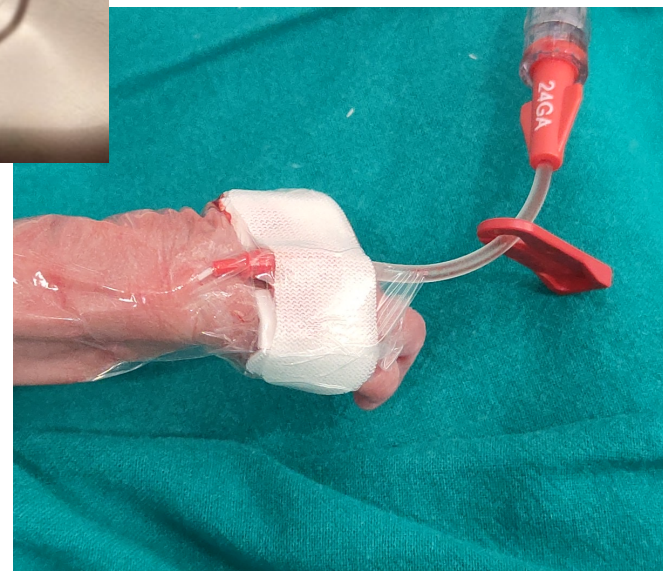
⚡ Cut-off diverso dagli adulti: nel neonato < 2 cm = SPC vs < 6 cm in bambini/adulti (NAVIGATE framework)

Accessi Venosi Periferici — Indicazioni

Peripheral venous access devices

Indications

Peripheral venous access devices (PVADs) are used for the administration of intravenous fluids, medications, and nutritional support suitable for a peripheral vein, over a short period of time [8]. PVADs are indicated when central venous access is not required and infusion therapy is anticipated to last less than 5 days. As defined within the NAVIGATE framework [9], neonatal PVADs are classified as short and long peripheral catheters (n-SPC, n-LPC) according to their length (n-SPC < 2 cm; n-LPC 2–6 cm). PVADs — while often considered low risk — must be used with caution in neonates, since the risk of complications related to these devices is particularly high. Reported failure rates may exceed 40% and failure is primarily due to infiltration, occlusion, dislodgement, and infection [10–13]. These complications may lead to delays of treatment, escalation to central access, or skin injuries. Contraindications to PVADs include local skin infection, poor venous patrimony, previous complications at the insertion site, and clinical scenarios that specifically require central venous access [14].



Accessi Venosi Periferici

Insertion bundle

Preprocedural evaluation Before insertion, a comprehensive review of the neonate's clinical condition, vascular access history, and therapeutic needs is suggested. The most appropriate vein should be chosen using a structured protocol such as the Rapid Superficial Vein Assessment (RaSuVA) [11]. Visualization tools such as near-infrared (NIR) devices are also strongly encouraged to guide vein selection and to increase the number of visible veins [11, 15, 16]. Priority should be given to distal superficial veins, avoiding those

Securement and dressing Securement is critical to minimize dislodgement, occlusion, and catheter-related complications.

The combined use of octyl-butyl cyanoacrylate tissue adhesive and semipermeable transparent dressing is important to enhance securement, create an antimicrobial barrier, and prevent bleeding [21, 22]. This strategy also favors an easier surveillance of the exit site. The moisture vapor transmission rate (MVTR) of the semipermeable transparent dressing should be higher than 1500 g H₂O/m²/24 h so as to achieve optimal transpirability [23].



Catetere Venoso Ombelicale (CVO)

Il primo accesso venoso centrale nel neonato critico alla nascita

Indicazioni (NEVAT 2026 e DAV-Expert)

- Prematuri ≤ 28 settimane EG
- Distress respiratorio grave (intubati o NIV con $\text{FiO}_2 > 40\%$)
- Instabilità emodinamica
- Accesso venoso periferico difficile
- Rianimazione alla nascita
- Monitoraggio PVC
- Prelievi frequenti
- Exsanguinotrasfusione
- Ipotermia terapeutica

Posizione della punta

Giunzione VCI-AD
(confermata con Neo-ECHOTIP in ecografia)

Tempo massimo di permanenza

7 giorni (CVO)
5 giorni (CAO)

Controindicazione

Difetti della parete addominale
(gastroschisi, onfalocele)

Inserzione dopo la nascita

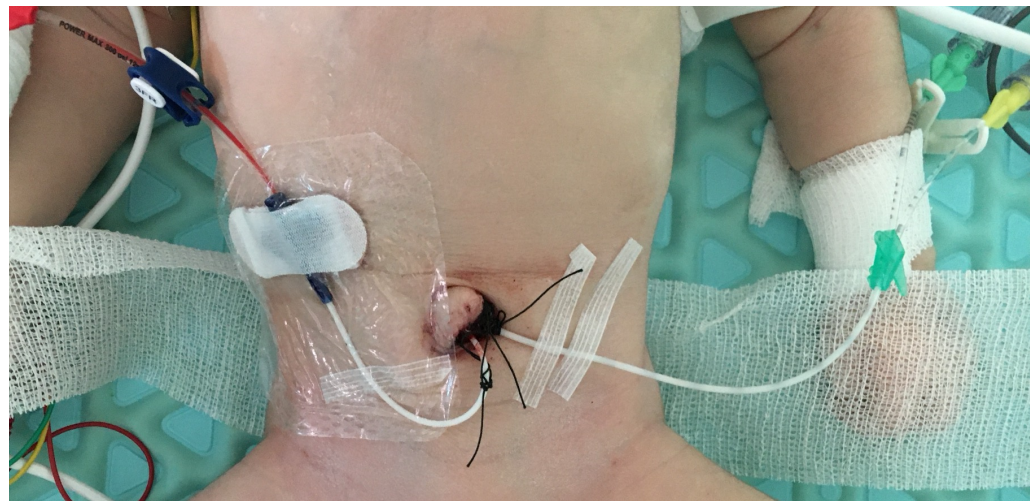
Fortemente sconsigliata dopo 24 h
(solo in emergenza)

Cateteri Ombelicali — CVO e CAO

Umbilical venous and arterial catheters

Indications

Umbilical venous catheters (UVCs) and umbilical arterial catheters (UACs) are particularly useful in emergency and intensive care. UVCs are indicated for (1) preterm infants born at or less than 28 weeks of gestation; (2) neonates with severe respiratory distress (intubated or on non-invasive ventilation with $\text{FiO}_2 > 40\%$); (3) neonates with hemodynamic instability; (4) neonates with difficult peripheral venous access; (5) neonates requiring resuscitation at birth; (6) neonates requiring emergency vascular access during resuscitation or transport; and (7) neonates with indication for central venous pressure monitoring, frequent blood sampling, exchange transfusion, or therapeutic hypothermia [8, 27]. UACs are indicated in case of (1) continuous invasive blood pressure monitoring in critically ill neonates requiring high ventilatory or hemodynamic support, or (2) frequent arterial blood sampling [28, 29]. Insertion of UVC or UAC more than 24 h after birth is discouraged and should be considered only in emergencies. Abdominal wall defects (e.g., gastroschisis, omphalocele) contraindicate umbilical access [27].



Cateteri Ombelicali — CVO e CAO

Insertion The umbilical vein and the umbilical arteries are identified; the catheter is advanced to the estimated length based on validated formulas (e.g., modified Shukla–Ferrara) or anthropometric measurements; real-time ultrasound tip navigation and tip location of the catheter are carried out using standardized protocols such as Neo-ECHOTIP [31–33]. The adoption of real-time tip navigation increases the likelihood of accurate positioning of UVC and reduces the rate of primary malposition to less than 10% [34–36]. Tip location of UAC can also be performed using real-time ultrasound, even though a standardized protocol for this purpose is not yet available in the literature [29].

Securement The application of octyl-butyl cyanoacrylate glue at the exit site is recommended for securement, hemostasis, and microbial barrier [27, 30, 37, 38]; a transparent semipermeable dressing with MVTR > 1500 should cover the site. The securement of the catheter by suturing it on the Wharton jelly of the umbilical cord can also be considered.



Catetere Epicutaneo-Cava (ECC / n-PICC)

Il dispositivo centrale a medio termine più diffuso in neonatologia: terminologia e concetti chiave



Il termine 'PICC' in neonatologia indica l'ECC (catetere epicutaneo-cava) — un dispositivo completamente diverso dal PICC in uso in età pediatrica (3–6 Fr, ecoguidato in vene del braccio)

Design	Tecnica di inserzione	Performance e durata
• Calibro: 1–2.7 Fr • Non power injectable • Mono o bilume • Poliuretano di vecchia generazione	• Inserito in vene superficiali (arto sup/inf, scalpo) • Split needle, Peelable cannula Seldinger modificato • Tip navigation e tip location in real-time (Neo-ECHOTIP)	• Flusso atteso: BASSA • Non idoneo per i prelievi e le trasfusioni • Durata: 2–3 settimane • Alto rischio di occlusione e complicanze meccaniche

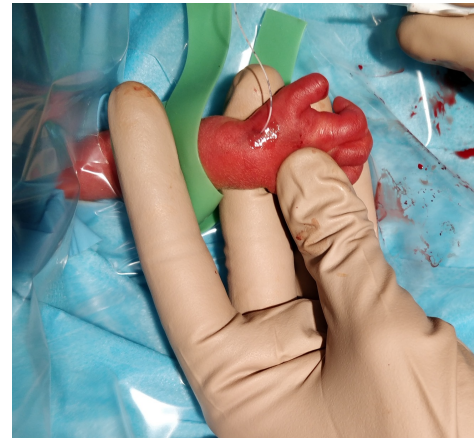
Tip location: terzo inferiore VCS / giunzione VCS-AD / Terzo superiore AD) · IVC subdiaframmatica / giunzione IVC-AD (approccio IVC)

Catetere Epicutaneo-Cava (ECC / n-PICC)

Epicutaneo-cava catheters

Indications

Epicutaneo-cava catheters (ECCs), also known as neonatal peripherally inserted central catheters (n-PICCs), are essential for medium-term central venous access in neonates. These devices are typically indicated in stable pre-term or term neonates for intravenous solutions unsuitable for the peripheral route, hyperosmolar parenteral nutrition (> 800 mOsm/L), or infusions with an expected duration of more than 5–7 days but less than 2–3 weeks [8].



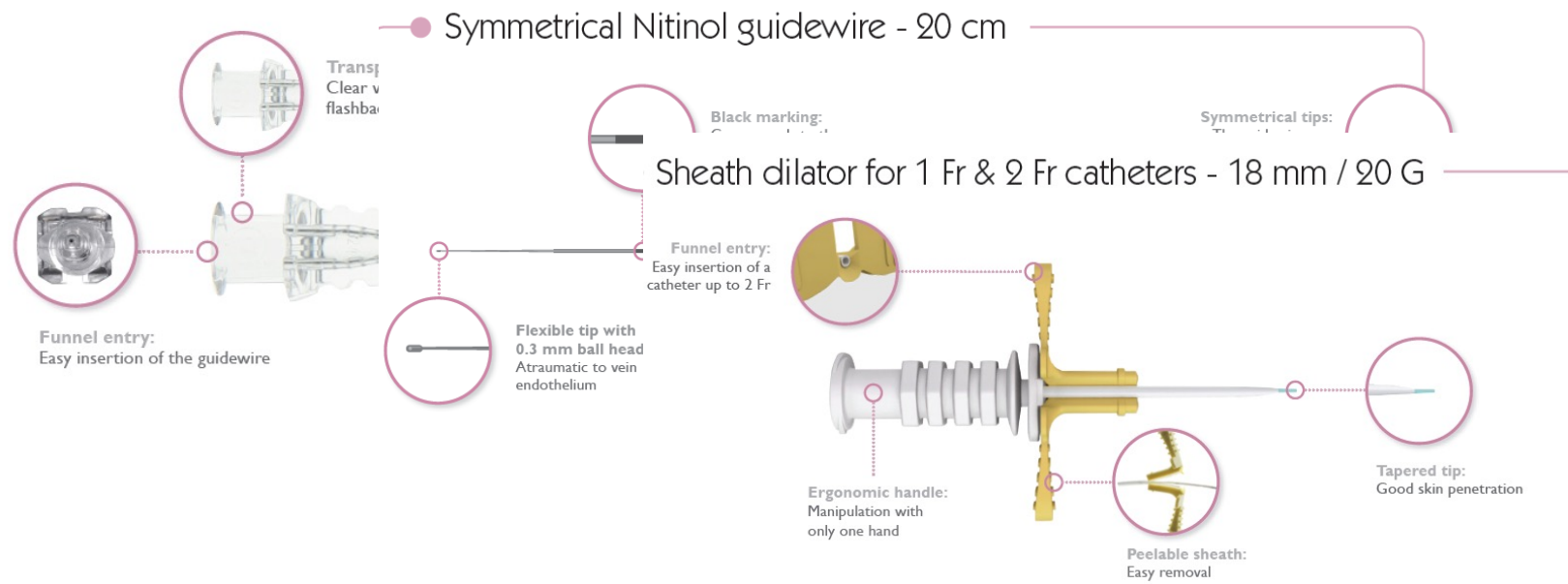
Catetere Epicutaneo-Cava (ECC / n-PICC)

Preprocedural evaluation A structured evaluation of vascular anatomy using the RaSuVA, with and without NIR technology, should be used. The RaSuVA protocol [11] aims to identify suitable veins in the upper and lower extremities and to avoid anatomical pitfalls such as valves and bifurcations. Selection of the superficial vein — typically basilic, cephalic, or greater saphenous vein—should be individualized and guided by vascular anatomy rather than by operator preferences. Ultrasound assessment of deep veins throughout standardized protocols such as the Rapid Peripheral Vein Assessment (RaPeVA) [40], the Rapid Central Vein Assessment (RaCeVA) [41], and the Rapid Femoral Vein Assessment (RaFeVA) [42] might also be used, so as to rule out thrombosis and assess vein diameter in order to match the external diameter of the vein with the inner caliber of the vessel.

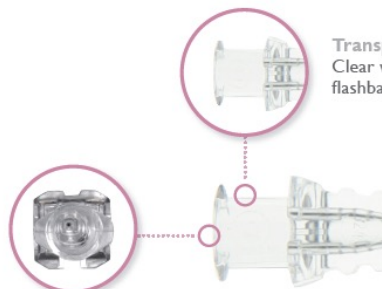
Insertion technique Venous cannulation can be performed using different techniques (split needle, peelable cannula, modified Seldinger). The use of the modified Seldinger technique effectively reduces the number of venipunctures, according to some preliminary studies [45, 46]. The catheter must be advanced based on anthropometric length estimation, but the systematic use of ultrasound for real-time tip navigation and tip location (adopting a standardized protocol such as Neo-ECHOTIP) is mandatory [31–33]: this strategy is highly effective in reducing the incidence of primary malposition and radiation exposure [47].

ECC

Puncture needle - 19 mm / 24 G



Puncture needle - 19 mm

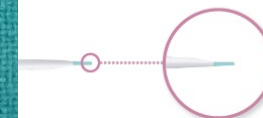


Funnel entry:
Easy insertion of the guidewire



Asymmetrical tips:

18 mm / 20 G



Tapered tip:
Good skin penetration

Length:

Centrally Inserted Central Catheter (CICC)

Accesso ecoguidato a vene profonde dell'area sopra/infraclavicolare

Indicazioni (NEVAT 2026 e DAV-Expert)

- Instabilità emodinamica
- Replezione volamica (emergenza / pre-chirurgia)
- Nutrizione parenterale prolungata (> 2–3 settimane)
- Monitoraggio emodinamico
- Frequenti prelievi ematici e/o trasfusioni
- Inserzione di ECC difficile o impossibile

Tecnica

Seldinger modificato con kit di microintroduzione
Approccio asse lungo –in plane (vena Anonima / VGI)
Tunnellizzazione verso area infraclavicolare
Tip location con ECG intracavitario o ecografia real-time (Neo-ECHOTIP)

Selezione del dispositivo

Cateteri poliuretano power-injectable 3 Fr o 4 Fr
Rapporto catetere/vena: max 1/3
2 Fr per neonati ELBW se necessario

Ultrasound-guided central venous access devices

Indications

Indications for placement of centrally inserted central catheters (CICCs) or femorally inserted central catheters (FICCs) by ultrasound-guided cannulation of deep veins include (1) hemodynamic instability, (2) need for rapid fluid repletion (in emergency and/or before major surgery), (3) prolonged parenteral nutrition (more than 2–3 weeks), (4) central venous pressure monitoring, (5) frequent blood sampling and/or blood transfusion, and (6) difficult/impossible insertion of ECC. CICCs allow direct access to the superior vena cava (SVC), and are usually inserted by ultrasound-guided cannulation of the brachiocephalic vein or of the internal jugular vein [8].

Ultrasound-guided FICC may be considered in cases where upper body access is contraindicated (such as in case of thrombosis of SVC) or technically challenging [8].



Femorally Inserted Central Catheter (FICC)

Accesso centrale alternativo— indicazioni specifiche in neonatologia

Indicazioni per i FICC

- Quando i CICC sono controindicati (es. trombosi della VCS)
- Tecnicamente più impegnativo rispetto all'inserzione di CICC

Posizione della punta

- VCI sottodiaframmatica (sotto le vene epatiche, sopra le vene renali) oppure giunzione VCI-AD
- Confermata con ecografia subcostale o transepatica (Neo-ECHOTIP)



Tunnellizzazione — Protocollo RAVESTO — Uso dei SAS

Tunnellizzazione ogni qual volta sia possibile



Dispositivi Venosi Centrali nel Neonato

Confronto delle principali performance cliniche tra i diversi dispositivi centrali nel neonato

	CVO	ECC / n-PICC	CICC	FICC
Prelievo ematico	✓ Sì	✗ No	✓ Sì	✓ Sì
Infusioni endoteliolesive	✓ Sì	✓ Sì	✓ Sì	✓ Sì
Trasfusioni	✓ Sì	✗ No	✓ Sì	✓ Sì
Monitoraggio emodinamico	✓ Sì	✗ No	✓ Sì	✓ Sì (AD)

Il bundle di inserzione — Principi condivisi per tutti i CVC

CVO · ECC · CICC · FICC — stesso framework, stesso core di raccomandazioni

1

Valutazione pre-procedurale

Condizione clinica · Necessità infusionale · Valutazione vene con protocolli standardizzati (RaSuVA · RaPeVA · RaCeVA · RaFeVA)

2

Selezione del dispositivo

Poliuretano · Diametro adeguato · Numero minimo di lumi · Rapporto catetere/vena max 1/3

3

Tecnica antisettica

CHG 2% in alcol 70% con applicatore monodose · Massime precauzioni di barriera · Pack procedurali

4

Tecnica di inserzione + tip navigation e location

Venipuntura ecoguidata (CICC · FICC) · Tip navigation e tip location con Neo-ECHOTIP/ECG endocavitario

5

Fissaggio e medicazione

Octil-butil cianoacrilato (1–2 gocce) · Dispositivo sutureless · Medicazione trasparente ad alto MVTR

6

Sorveglianza post-inserzione

Revisione giornaliera della necessità del VAD · Monitoraggio exit site · Controllo ecografico della punta

Accesso Intraosseo e Catetere Arterioso Periferico

Accesso Intraosseo (IO)

Indicazioni:

In emergenza qualora vi sia impossibilità rapida di accesso endovenoso periferico o centrale (ad es. arresto cardiaco; shock circolatorio).

Sito d'inserzione:

Tibia prossimale (sito preferito nel neonato).

Antisepsi:

CHG 2% in alcol isopropilico 70%.

Sorveglianza:

Ispezione oraria. Rimozione entro 24 h. Rimozione immediata se: sindrome compartimentale, osteomielite, frattura, dislocazione.

Catetere Arterioso Periferico

Indicazioni:

Monitoraggio PA invasivo-continuo nel neonato critico o chirurgico; frequenti EGA e prelievi.

Sede:

Arteria radiale (prima scelta), tibiale posteriore, femorale. Valutare circolo collaterale.

Dispositivo:

Prematuri: n-SPC 24–26G × 19 mm (cannula-over the needle).
Neonati a termine: 22–24G × 25–50 mm (Seldinger).

Inserzione ecoguidata:

Fortemente raccomandata per aumentare il tasso di successo e ridurre le complicanze,

Sorveglianza:

Verifica perfusione distale ogni ora (colore, temperatura, SpO₂ PI). Monitorare curva pressoria. .

Tabella Sinottica — Tutti i Dispositivi

Table 1 Synthesis of the position paper for each vascular access device

Device/topic	Key indications	Insertion bundle	Post-insertion surveillance
PVAD (n-SPC, n-LPC)	Short-term intravenous infusion (<5 days)	NIR/RaSuVA selection of the vein; skin antisepsis with CHG in alcohol; polyurethane catheters; cyanoacrylate + high MVTR transparent membrane	Hourly assessment; daily review of device necessity
UVC/UAC	Emergency/critical care; critical ill neonates at birth; parenteral nutrition at birth	Skin antisepsis with CHG in alcohol; ultrasound for tip navigation and location (Neo-ECHOTIP); minimal number of lumens; cyanoacrylate + high MVTR transparent membrane	Tip check at 24–48 h; daily review of device necessity; monitor for lower limb ischemia; max dwell time UVC 5–7 days, UAC 5 days
ECC (n-PICC)	Medium-term parenteral nutrition in stable preterm neonates (2–3 weeks) non-peripheral infusions	NIR/RaSuVA selection of the vein; skin disinfection with CHG in alcohol; ultrasound for tip navigation and location (Neo-ECHOTIP); cyanoacrylate + high MVTR transparent membrane	Tip check at 24–48 h and then weekly; daily review of device necessity; exit site monitoring
CICC/FICC	Long-term access; critical ill neonates, hemodynamic monitoring	Vein selection with RaCeVA and RaFeVA; modified Seldinger technique; ultrasound-guided venipuncture; real time tip location; tunneling, whenever possible; securement with subcutaneous anchorage	Daily review of device necessity
Intraosseous	Emergency, or impossible intravenous access	Appropriate device/site; skin antisepsis with CHG in alcohol	Max 24 h; hourly site checks; remove if complication suspected
Peripheral arterial catheters	Blood pressure monitoring; frequent blood gas analysis	Ultrasound guidance; skin antisepsis with CHG in alcohol; cyanoacrylate + high MVTR transparent membrane	Hourly limb perfusion; waveform monitoring

Gestione delle Linee Infusionali



Igiene delle mani + ANTT®

Igiene mani prima e dopo ogni contatto con le linee (WHO). Standard-ANTT® o Surgical-ANTT® secondo la complessità della manovra. Pilastro irrinunciabile di ogni bundle



Sistemi preassemblati ed NFC

Tutti le porte di accesso devono essere protette con NFC a displacement neutro e minimo spazio morto. Allestimento della linea infusionale standardizzato prediligendo sistemi preassemblati (octopus)



Port Protector

Fortemente raccomandati in TIN per protezione continua di ogni hub di accesso. Aumento della compliance in periodi di understaffing o in emergenza.



Flush con siringhe pre-riempite

Garantisce l'utilizzo di siringhe di diametro adeguate. Riduce il rischio di contaminazione. Maggior controllo dei volume.



Approccio a checklist

Cambio linea infusionale con checklist idonee e adeguata sequenza.



Formazione continua

Formazione periodica di tutto il team. Identificazione precoce di complicanze: infiltrazione, occlusione, segni di infezione

Conclusioni

Primo documento europeo sull'accesso vascolare neonatale

- ✓ **Promuove un proactive vascular plan**
- ✓ **Include bundle standardizzati di impianto per ogni VAD**
- ✓ **Utilizzo sistematico dell'ecografia**
- ✓ **Secure & Protect degli exit site**
- ✓ **Principi di gestione delle line infusionali**

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REVIEW



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Abstract

Vascular access is a cornerstone of neonatal intensive care, yet current practice remains heterogeneous due to the lack of harmonized international guidelines. In this article, we present a position paper developed by a group of European experts — the Neonatal European Vascular Access Teams (NEVAT) — designed as a guide in planning, inserting, and maintaining vascular access in neonates. The position paper was developed using a not anonymous consensus method. Seven working groups prepared preliminary drafts on seven specific topics: peripheral venous devices, umbilical catheters, epicutaneo-cava catheters, ultrasound-guided central catheters, intraosseous access, peripheral arterial catheters, and infusion line management. The drafts were analyzed, modified, and validated through multiple rounds of open discussion, until full agreement was reached. The resulting position paper advocates a proactive, individualized, and standardized approach. Key elements include evidence-based selection of the device, structured preprocedural evaluation, maximal aseptic precautions, systematic use of ultrasound, securement with cyanoacrylate and semipermeable dressings, and structured post-insertion surveillance. Infusion line management emphasizes the use of closed systems, passive disinfection caps, and checklists. The NEVAT developed this position paper with the purpose of combining best evidence with expert agreement, so as to reduce variability in clinical practice, enhance safety, and improve neonatal outcomes, while encouraging multidisciplinary collaboration and family-centered care.

What is Known:

- Neonates are highly vulnerable to vascular access complications, but current practice is heterogeneous, with limited evidence-based guidance and significant variability across NICUs.

What is New:

- The NEVAT group provides the first European position paper on neonatal vascular access, aiming to improve homogeneity in device selection, insertion, and maintenance, promoting a safer and more consistent care.

Keywords Vascular access · Neonatal intensive care unit · Central venous catheter · Critically ill neonates

Abbreviations

CICC	Centrally inserted central catheter	IO	Intraosseous access
CHG	Chlorhexidine gluconate	MVTR	Moisture vapor transmission rate
ECC	Epicutaneo-cava catheter	NIR	Near-infrared technology
FICC	Femorally inserted central catheters	NEVAT	Neonatal European Vascular Access Teams
		n-PICC	Neonatal peripherally inserted central catheter
		n-SPC	Neonatal short peripheral catheter
		n-LPC	Neonatal long peripheral catheter
		PVAD	Peripheral venous access device
		RaCeVA	Rapid Central Vein Assessment
		RaFeVA	Rapid Femoral Vein Assessment
		RaPeVA	Rapid Peripheral Vein Assessment
		RaSuVA	Rapid Superficial Vein Assessment
		SVC	Superior vena cava
		UAC	Umbilical arterial catheter
		UVC	Umbilical venous catheter
		VAMP	Vascular access management plan

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