



VIII Convegno Nazionale GAVePed



Accessi venosi nel neonato e nel bambino

**Centro Congressi
Stazione Marittima
Molo Angioino - Napoli**
11-12 maggio 2026



**Come comportarsi nella necessità
urgente di un accesso venoso**

**OPZIONI PER L'ACCESSO VENOSO
IN EMERGENZA NEL NEONATO**

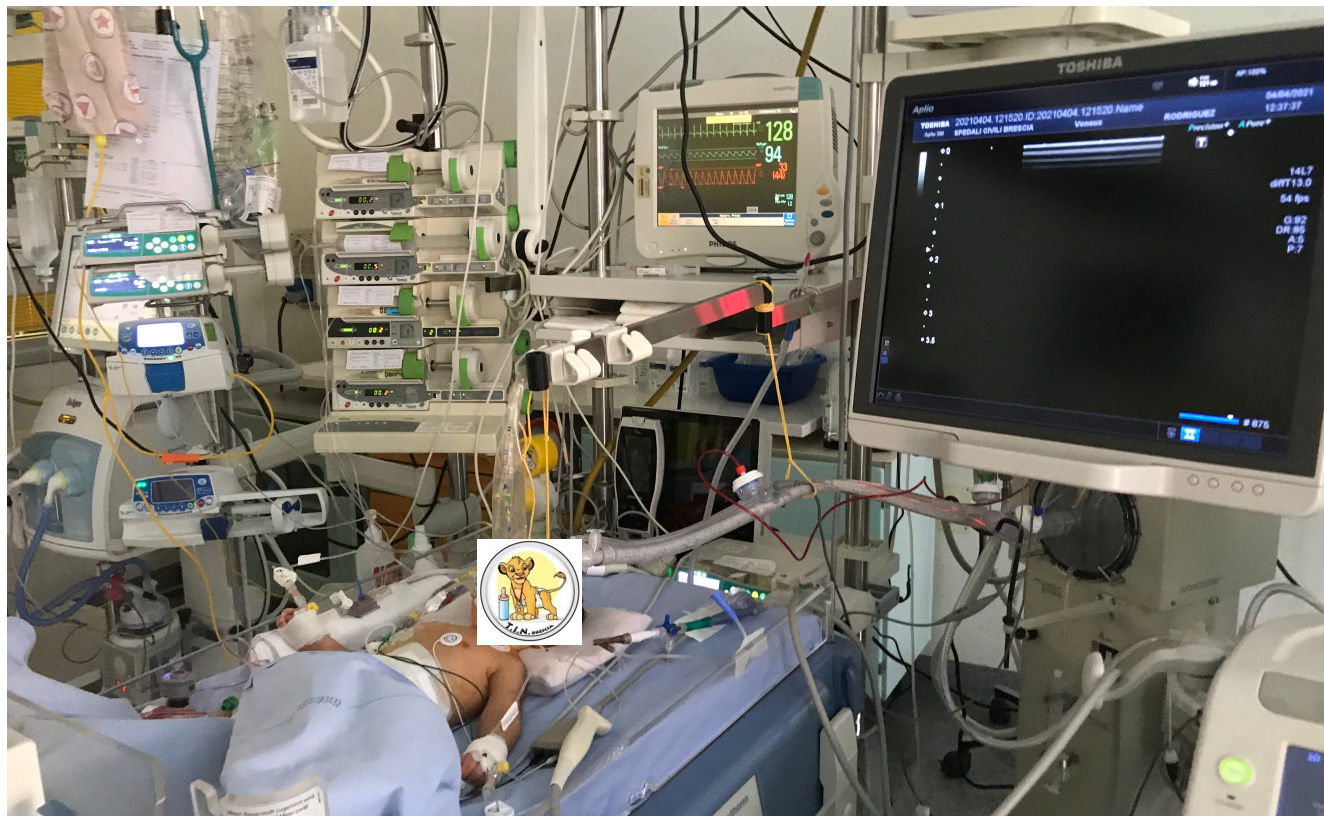
Carmen Rodríguez-Perez

S.C. Neonatologia e

Terapia Intensiva Neonatale

Ospedale dei Bambini

ASST Spedali Civili di Brescia



DISPOSITIVI per ACCESSO VENOSO NEONATALE...

....in emergenza

- Catetere venoso ombelicale (**CVO**)
- Cannula periferica corta standard (**n-SPC**)
- Accesso intraosseo (**IO**)
- **CICC/FICC** non tunnellizzato ecoguidato



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Part 5: Neonatal Resuscitation: 2025 American Heart Association and American Academy of Pediatrics Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care

Neonatal Resuscitation: 2025 AHA/AAP Guidelines for CPR and ECC

2025

VASCULAR ACCESS DURING RESUSCITATION

Recommendations for Vascular Access During Resuscitation		
COR	LOE	Recommendations
1	C-LD	1. Insertion of an <u>umbilical vein catheter</u> is <u>recommended for newborn infants</u> requiring emergency vascular access.
2a	C-LD	2. Insertion of an <u>intraosseous (IO) vascular access</u> device can be useful for newborn infants requiring emergency vascular access if intravenous access is not successful or not feasible.

Intravascular Access

When intravascular access is required in the newborn infant, the umbilical venous route is preferred. When intravenous access is not possible or feasible, the IO route may be considered.

Circulation. 2025;152(suppl 2):S385–S423.

European Resuscitation Council Guidelines 2025

Newborn Resuscitation and Support of Transition of Infants at Birth



ALLA NASCITA

Vascular access

Umbilical venous access.

- Use the umbilical vein for rapid emergency vascular access during resuscitation at birth.
- Perform emergency umbilical venous catheter (UVC) placement under clean rather than sterile conditions to ensure timely vascular access is secured.
- Consider the use of emergency umbilical venous catheter until some days after birth as it may still be achievable.

Intraosseous access.

- Use intraosseous (IO) access as an alternative method of emergency vascular access for medication and fluids.
- Consider device-specific weight limitations for IO related equipment.
- Ensure there is no extravasation when administering medication and fluids.
- Do not aspirate bone marrow; even when correctly positioned, it is often not possible.

Support of transition/post-resuscitation care.

- If venous access is required following resuscitation, peripheral access may be adequate unless multiple infusions and/or vasopressors are required in which case central access may be preferred.

CVO ...in emergenza

DISPOSITIVI

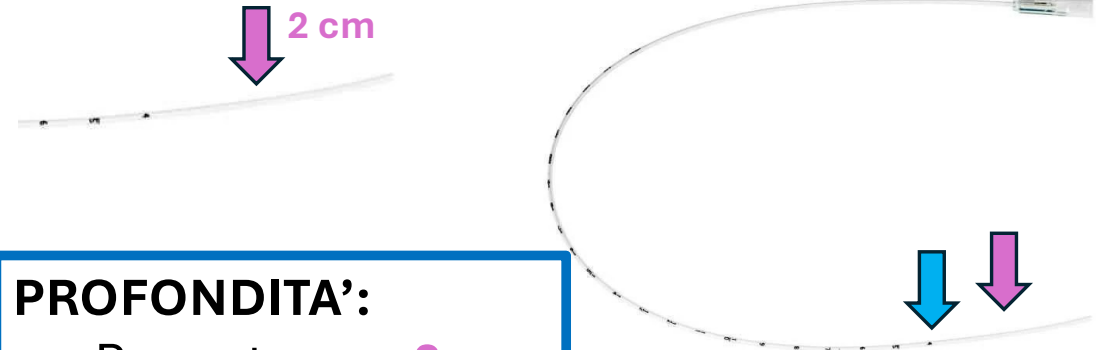
Materiale: Poliuretano

Calibro: **3,5 Fr** (pret.) e **5 Fr** (term)

Lumi: **Monolume**

PROFONDITA':

- Prematuro.... **2 cm**
- A termine..... **4 cm**

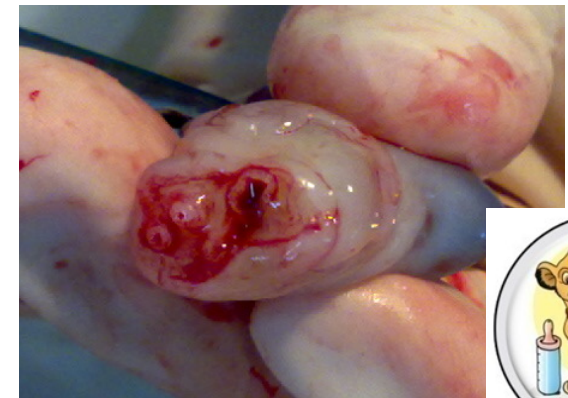


BUNDLE IMPIANTO

1. Usa **kit/pack per impianto**
2. Anti-sepsi (CHG 2% in IPA 70%)
3. Taglia cordone
4. Individua vena ombelicale
5. Introdurre catetere preriempito con SF
6. Verifica aspirazione sangue prima dell'uso
7. Rimuove entro 24 ore

RICORDATI DI:

- Riempirlo di SF 0,9% sterile
- Rimuoverlo entro 24 ore





KIT/PACK per CVO emergenza



Cateteri

- ☐ 3,5 Fr se <1500g
- ☐ 5 Fr se >1500g

KIT

- ☐ Rubinetto a 3 vie
- ☐ Siringhe 1ml e 10 ml
- ☐ Bisturi/forbice sterili
- ☐ Pinza dentata sterile
- ☐ Pinza sterile
- ☐ Steri-strips sterili
- ☐ Garze sterili
- ☐ Telo sterile

- ☐ CHG 2% in IPA 70%
(applicatore monodose sterile)
- ☐ Soluzione fisiologica sterile

PACK PRE-ASSEMBLATO POSIZIONAMENTO CVO

+CVO+CHG+SF





«**Within 7 days of birth**, the **umbilical vein** is completely **obliterated** and replaced by a fibrous cord (ligamentum teres, or round ligament of the liver). Postnatal closure of the ductus venosus starts during the first minute after birth. The ductus venosus courses from the umbilical vein to the IVC and is **obliterated** to form the ligamentum venosum.»



European Resuscitation Council Guidelines 2025

Newborn Resuscitation and Support of Transition of Infants at Birth

2025



Vascular access

Umbilical venous catheter (UVC) and intraosseous (IO) access

No new evidence was identified comparing umbilical venous catheter (UVC) route or use of intravenous (IV) cannulas against the intraosseous (IO) route in the newborn for drug administration in any setting in an ILCOR systematic review.⁴³ A systematic review on the use of IO in neonates in any situation identified one case series and 12 case reports of IO device insertion into 41 neonates delivering several

femur may be feasible as well.^{368,369} IO access might be possible in preterm infants. However, device-specific weight limitations must be considered. ERC recommends, in alignment with ILCOR, to use UVC as the primary method of vascular access at birth, and if UVC is not feasible, or birth occurs in another setting, the IO route is a reasonable alternative.

Peripheral access

No studies were identified reviewing the use of peripheral IV cannulation in infants requiring resuscitation at birth. A retrospective analysis of 61/70 stable newborn preterm infants in a single centre showed that peripheral IV cannulation is feasible and successful in most cases at first attempt.³⁷⁰

Peripheral Intravenous Access in Preterm Neonates during Postnatal Stabilization: Feasibility and Safety

2017

establish a peripheral venous catheter. In median, IV catheterization was successfully established 5 (IQR 4–9) min after birth, whereby in 38 (62.3%) preterm neonates, the peripheral venous catheter was established with the first attempt. All infants had



Transilluminatore a luce fredda

OTTIMIZZATORI DELLA VISUALIZZAZIONE DELLE VENE SUPERFICIALI

Tecnologia NIR



D. Use near infrared (nIR) light technology to aid in locating viable superficial peripheral venous sites and decreasing procedure time for peripheral intravenous catheter (PIVC) insertion.

1. Available technology includes hands-free devices that capture an image of the veins and reflect it back to the skin's surface or to a screen.
2. Use nIR light technology to assess peripheral venous sites and facilitate more informed decisions about vein selection (ie, bifurcating veins, tortuosity of veins, palpable but nonvisible veins, location of venous valves). The use of nIR technology has been associated with enhanced first-time insertion success and decreased procedural time compared to traditional visual assessment and palpation in some populations, such as neonates.¹²⁻¹⁴ (II)

INS

C. Consider the use of visible light devices that provide transillumination of the peripheral veins.

1. Visible light devices aid in locating superficial veins in neonates; however, their usefulness in infants, older children, and adults is limited due to the thickness of subcutaneous tissue and size of the arm circumference.^{3,8} (II)

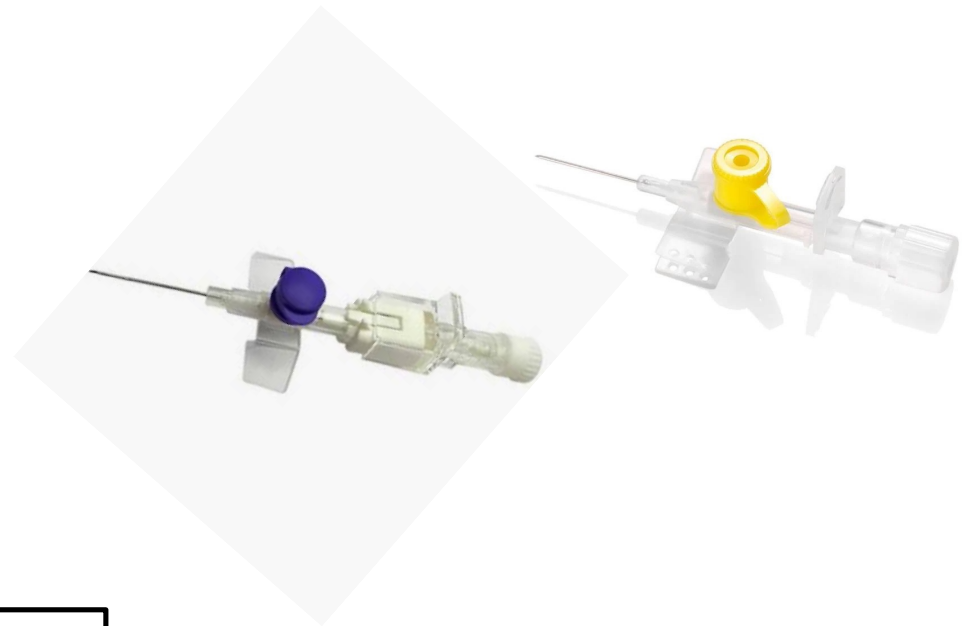
n-SPCin emergenza

DISPOSITIVI

Materiale: Poliuretano

Calibro: **26 G** (<1000g) e **24 G**

Con **alette stabilizzazione**



BUNDLE IMPIANTO

1. Ottimizzare visualizzazione v. superficiali
2. Anti-sepsi (CHG2% in IPA 70%)
3. Stabilizzazione (colla+memb semip trasp)
4. Rimuove entro 24 ore

RICORDATI DI:

- Posizionare **2 n-SPC**, se possibile.
- Rimuovere entro 24 ore

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Accesso Intraosseo

Difficoltà oggettiva di ottenere un accesso venoso periferico o centrale in tempi rapidi (>90 secondi, 2-3 tentativi falliti) in situazione di **EMERGENZA**



Accesso alternativo
all'accesso endovenoso in emergenza

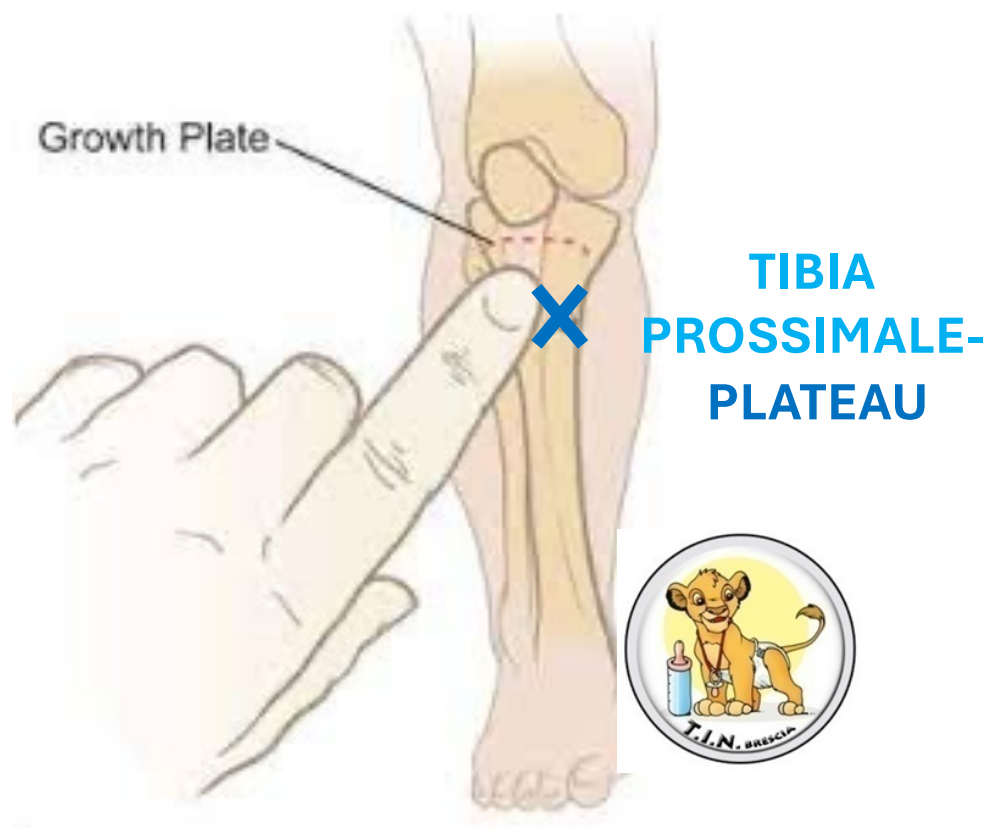


M.O.
sistema non collassabile,
neanche in caso di shock o
ipovolemia severa

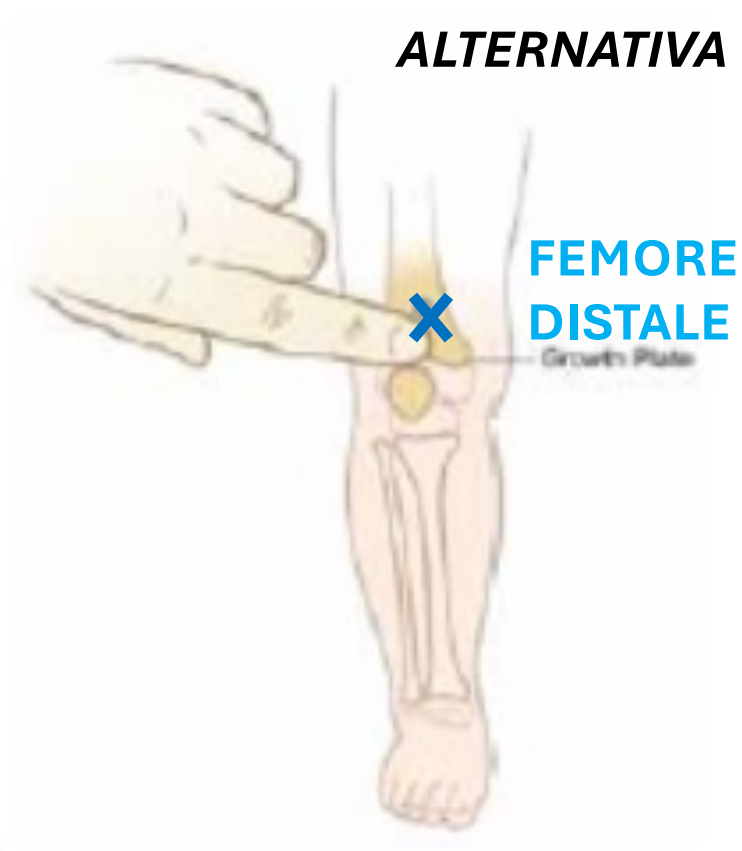


SEDI IMPIANTO IO NEONATALE

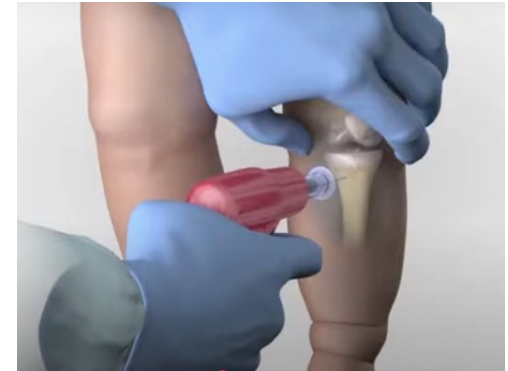
1° SCELTA



ALTERNATIVA



Dispositivi per intraossea nel neonato



15G



Neonate
/Infant



15mm

≥ 3kg



25mm



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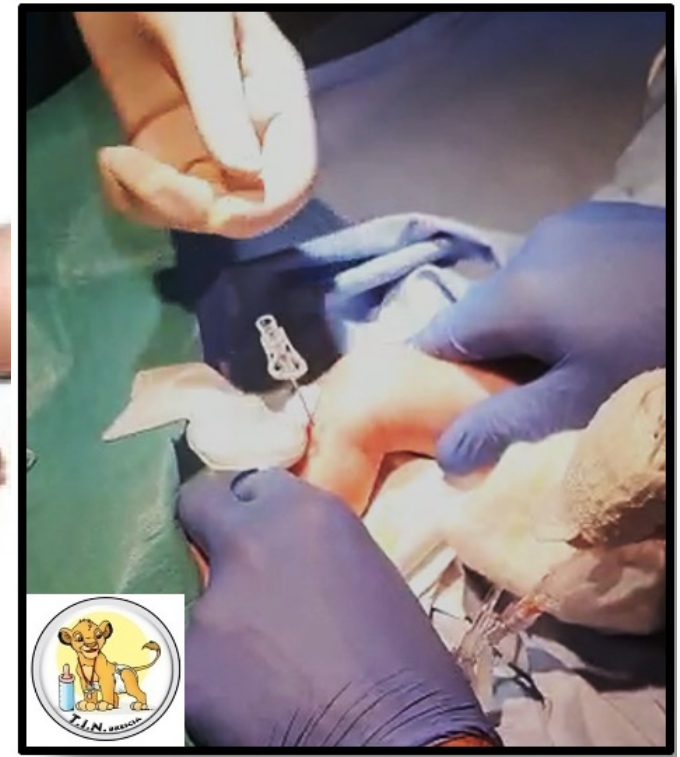


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3,1 kg



Accesso intraosseo manuale nel neonato



Utile nel neonato prematuro



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IO ACCESSO DI TRANSIZIONE



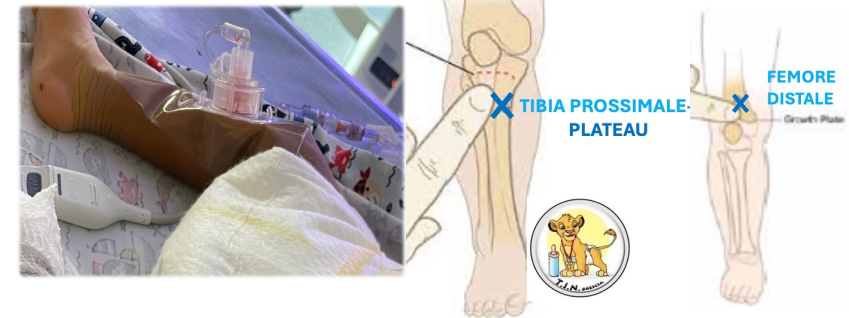
IO va rimosso
entro **24** ore



Accesso intraosseo neonatale

DISPOSITIVI

- Trapano automatico, aghi 15G (15-25 mm)
- Aghi 18-19G



RICORDATI DI:

- IO SOLO in emergenza
- IO controindicato se frattura ossea nel sito di inserzione
- Rimozione entro 24 ore
- Non praticata senza training previo

BUNDLE ISA-IO

1. Individuare **punto impianto** e scelta **ago/dispositivo**
2. Antisepsi cutanea (CHG 2% in IPA 70%) e **analgo-sedazione**
3. Ago **perpendicolare all'osso**, attraversare la pelle premendo.
4. Attivare trapano/esercitare movimenti rotatori dell'ago sull'osso
5. Appena avvertito «**cedimento**», rilasciare immediatamente il grilletto/movimento rotatorio.
6. Lavaggio con SF in siringa di 5/10 ml (anestetico!). Provare **aspirazione di sangue midollare**.
7. Stabilizzare l'ago, collegare prolunga pre-riempita con SF e iniziare l'infusione/terapia/prelievi/trasfusione.
8. **Sorveglianza: continua**, e neurovascolare dell'arto (fino a 24 h post-rimozione)



Infusioni / soluzioni/ farmaci **compatibili con** accesso vascolare di **emergenza nel neonato**

Tutti quelli necessari alla rianimazione...

....indipendentemente del tipo di accesso,
purché sia correttamente posizionato!



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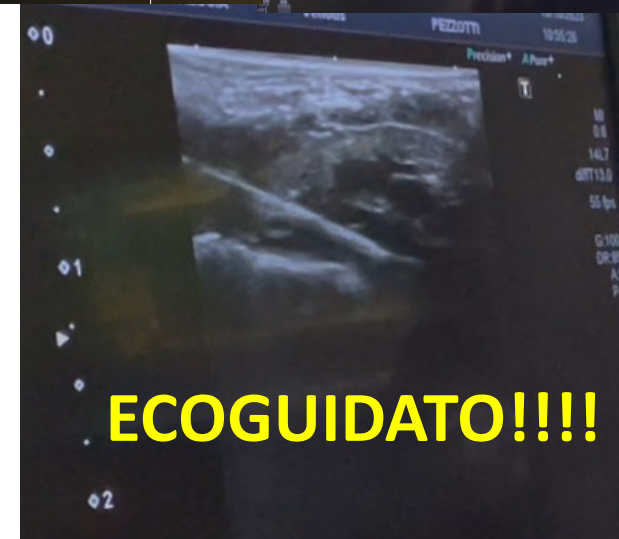
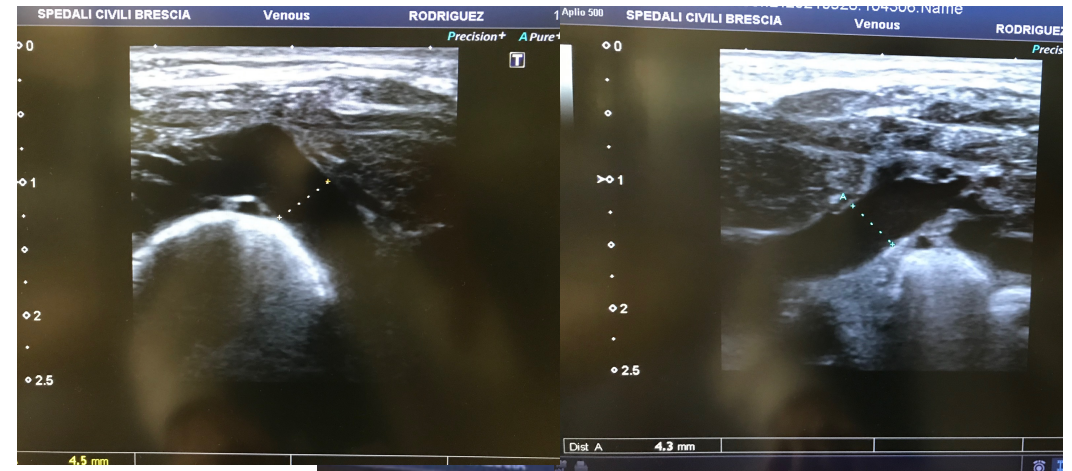
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CICC/FICC NON TUNNELIZZATO



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CICC/FICC ...in emergenza -non tunnellizzato-

DISPOSITIVI

Materiali: poliuretano

Calibro: **3 Fr, 6-10 cm**

Lumi: 1L o 2L

Tecnica ECOGUIDATA Seldinger

RICORDATI

- **No tunnel**, soltanto in urgenza/emergenza
- Sostituire con CICC/FICC tunnellizzato

ISAC-Ped

1. Valutazione preimpianto: RaCeVA / RaFeVA
2. Tecnica asettica
3. Venipuntura ecoguidata
4. Tip location intra-procedurale (icECG e/o Neo-ECHOTIP)
5. Protezione exit site (colla)
7. Stabilizzazione con 'sutureless device' e memb semip trasparente ad alto MVTR.



ACCESSI VENOSI NEONATALIin emergenza

ALLA NASCITA
(v. ombelicale disponibile)



DOPO la NASCITA
(v. ombelicale non disponibile)



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Grazie per l'attenzione