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Fondazione Policlinico Universitario A. Gemelli
Università Cattolica del Sacro Cuore

UNIVERSITÀ CATTOLICA del Sacro Cuore

IL DOCUMENTO *NAVIGATE* SULLA NOMENCLATURA DEGLI ACCESSI VENOSI E GLI ATTUALI *BUNDLE* GAVECELT/GAVEPED IN AMBITO NEONATALE E PEDIATRICO

MAURO PITTIRUTI

FONDAZIONE POLICLINICO UNIVERSITARIO 'A. GEMELLI'

ROMA

GAVePed
Gruppo Accessi Venosi Pediatrici

GAVeCeLT
Gli Accessi Venosi Centrali a Lungo Termine

2023-2025: UN BIENNIO IMPORTANTE !

- Nuovi documenti sulla scelta del dispositivo in ambito pediatrico-neonatale
- Nuovi protocolli di inserzione di accessi venosi pediatrico-neonatali
- Nuove raccomandazioni generali sui dispositivi per accesso venoso pediatrico-neonatali

2023-2025 – DOCUMENTI SULLA SCELTA DEL DISPOSITIVO IN AMBITO PEDIATRICO-NEONATALE

- Algoritmo per la scelta del dispositivo di accesso venoso nel neonato
- Algoritmo per la scelta del dispositivo di accesso venoso nel bambino
- Raccomandazioni per la scelta dell'accesso venoso nel paziente oncologico (adulto e bambino)

European Journal of Pediatrics
https://doi.org/10.1007/s00431-023-04984-4

2023

REVIEW

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

Giovanni Barone[1] · Vito D'Andrea[2] · Gina Ancora[1] · Francesco Cresi[3] · Luca Maggio[4] · Antonella Capasso[5] · Rossella Mastroianni[6] · Nicola Pozzi[7] · Carmen Rodriguez-Perez[8] · Maria Grazia Romitti[9] · Francesca Tota[10] · Ferdinando Spagnuolo[11] · Francesco Raimondi[5] · Mauro Pittiruti[12]

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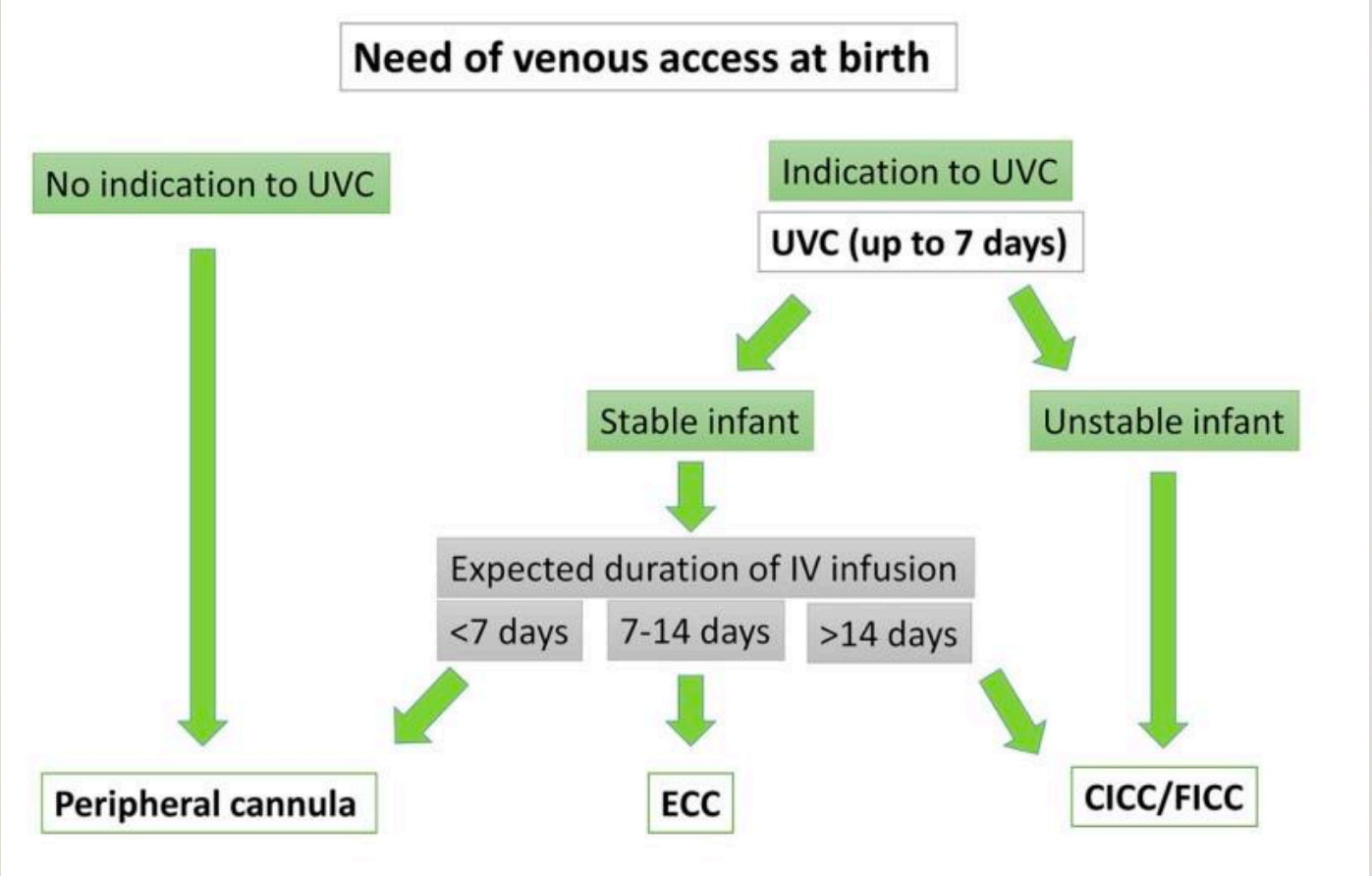
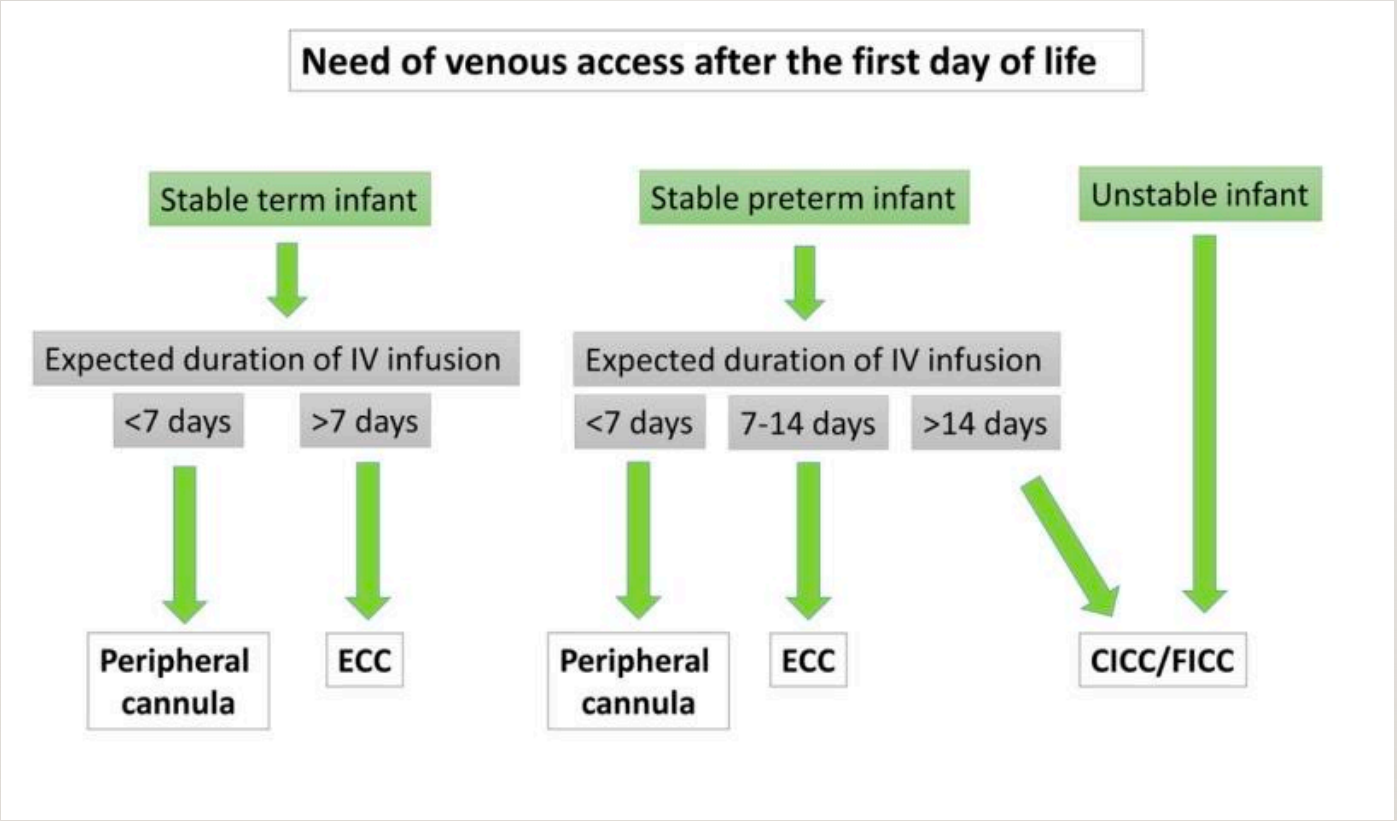
2023


Need of venous access at birth
No indication to UVC
Indication to UVC
UVC (up to 7 days)
Stable infant
Unstable infant
Expected duration of IV infusion
<7 days
7-14 days
>14 days
Peripheral cannula
ECC
CICC/FICC

2023


Need of venous access after the first day of life
Stable term infant
Expected duration of IV infusion
<7 days
>7 days
Peripheral cannula
ECC
Stable preterm infant
Expected duration of IV infusion
<7 days
7-14 days
>14 days
Peripheral cannula
ECC
Unstable infant
CICC/FICC

JVA The Journal of Vascular Access

Review

The Journal of Vascular Access
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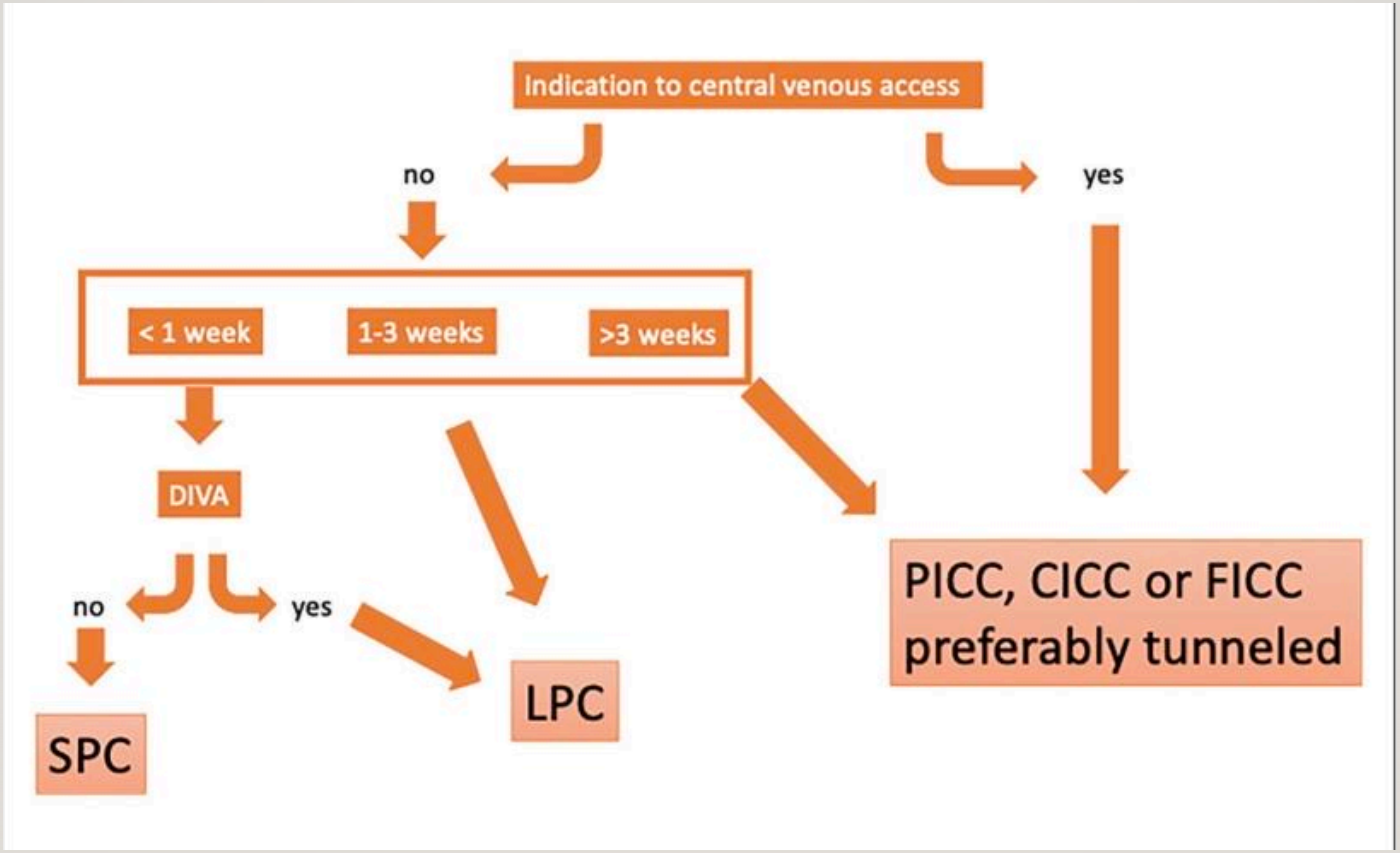
The pediatric DAV-expert algorithm: A GAVeCeLT/GAVePed consensus for the choice of the most appropriate venous access device in children

2024

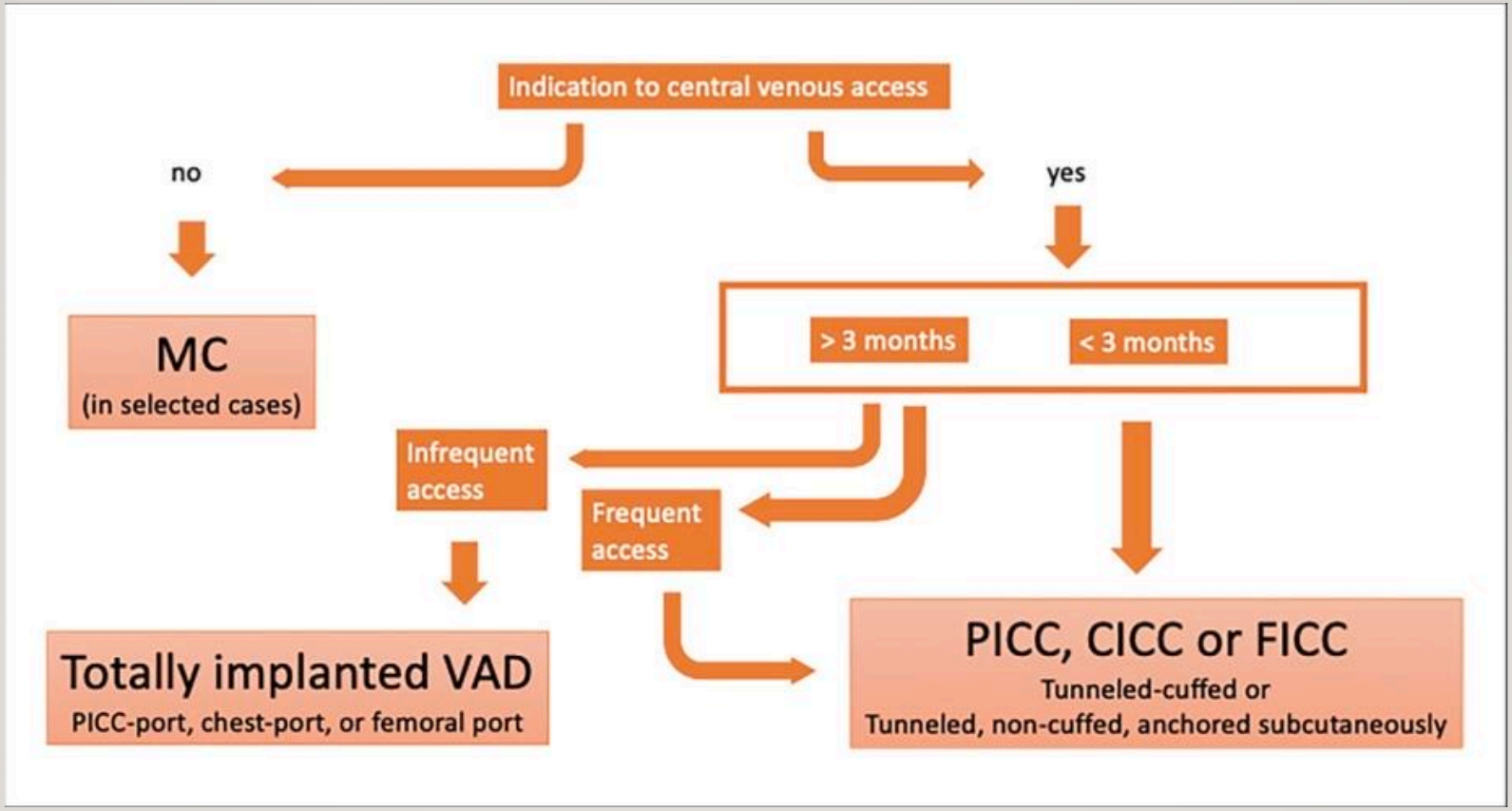
Mauro Pittiruti[1], Alessandro Crocoli[2], Clelia Zanaboni[3], Maria Giuseppina Annetta[4], Michela Bevilacqua[5], Daniele G Biasucci[6], Davide Celentano[7], Simone Cesaro[8], Antonio Chiaretti[9], Nicola Disma[10], Aldo Mancino[11], Cristina Martucci[2], Lidia Muscheri[11], Alessio Pini Prato[12], Alessandro Raffaele[13], Simone Reali[2], Francesca Rossetti[14], Giancarlo Scoppettuolo[15], Luca Sidro[16], Geremia Zito Marinosci[16] and Gilda Pepe[1]

GAVeCeLT
Gli Accessi Venosi Centrali a Lungo Termine

2024


Indication to central venous access
no
yes
< 1 week
1-3 weeks
>3 weeks
DIVA
no
yes
SPC
LPC
PICC, CICC or FICC
preferably tunneled

2024


Indication to central venous access
no
yes
MC
(in selected cases)
> 3 months
< 3 months
Infrequent access
Frequent access
Totally implanted VAD
PICC-port, chest-port, or femoral port
PICC, CICC or FICC
Tunneled-cuffed or
Tunneled, non-cuffed, anchored subcutaneously

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Editorial

International experts consensus on optimal central vascular access device selection and management for patients with cancer

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Mohammad Jahanzeb[1], Ching-Yang Wu[2], Howard Lim[3], Kei Muro[4], Lichao Xu[5], Manjiri Somashekhar[6], Sampige Prasannakumar Somashekhar S P[6], Xiaotao Zhang[7], Xiaoxia Qiu[8], Ying Fu[9] and Mauro Pittiruti[10]

2024

GloVANet
Global Vascular Access Network

Table 2. Consensus statements regarding optimal use of central venous access devices in oncology.

2024

1. What are the indications for a CVAD in a patient with cancer?
   CVADs are recommended when infusing chemically irritating or vesicant drugs to reduce the risk of peripheral phlebitis and/or extravasation. Also, CVADs should be considered when there is insufficient peripheral venous access for the duration of the planned treatment or in the context of a failed or difficult peripheral intravenous access even with ultrasound guidance, despite the compatibility of intravenous infusion with the peripheral route.
2. Which are the options for CVADs in a patient with cancer?
   Both external catheters (tunneled and non-tunneled CVADs like PICC, CICC, or FICC based on the insertion site) and totally implantable devices (ports including chest, brachial, and femoral ports) should be considered for patients with cancer, with the choice depending on patient needs, treatment duration, and clinical setting.
3. Who should decide the type of VAD to be inserted?
   The selection of the most appropriate CVAD should be a collaborative process, involving the referring healthcare provider, vascular access specialists, patient, device maintenance team, and, when applicable, the patient's caregiver. The choice must be based on a comprehensive understanding of the patient's condition, the device and its insertion techniques, potential complications, and suitability of the device to the intended therapy and medications.
4. Which factors determine the choice of a port rather than an external catheter?
   External catheters are preferred for medium-term vascular access (<3–4 months); they are also preferred for long-term (>3–4 months) frequent access (i.e. every day, every other day, or on a weekly basis). Totally implantable ports are preferred for infrequent long-term vascular access (>3–4 months duration, access every 2–3 weeks). It is advisable to select ports for patients living in environments with lower hygiene or privacy, given the easier maintenance and reduced infection risk with infrequent access. For patients with cosmetic concerns or those engaging in water activities, ports are preferred as they offer psychological advantages and less lifestyle disruption.
5. What are the prerequisites for the insertion of the port in terms of logistics?
   The prerequisites for the insertion of a port in terms of logistic include (a) availability of the device and access to proper facilities, including essential equipment and supplies for asepsis, imaging, and monitoring devices, and effective management of biomedical waste and (b) availability of clinicians or specialized vascular access teams with specific training in venous access procedures.

2024

6. Who should insert the port?

Healthcare professionals with specific and appropriate training within the regulatory framework of the relevant healthcare system should insert the port. This includes physicians (surgeons, interventional radiologist, anesthetists, oncologist, intensivist, any other physician duly trained), advanced practice clinicians (nurse practitioners, physician assistants), and staff nurses.

7. What are the prerequisites for the insertion of the external catheter (PICC, FICC, and CICC) in terms of logistics?

The logistical prerequisites for inserting an external catheter include device availability, provider and staff competence with specific training in VAD management, access to adequate facilities and appropriate equipment, and informed patient consent.

8. Who should insert external catheters (PICC, FICC, CICC)?

Healthcare professionals with suitable and specific training within the regulatory framework of the relevant healthcare system—including physicians (such as surgeons, interventional radiologists, anesthetists, oncologists, intensivists, and other duly trained physicians), advanced practice clinicians (like nurse practitioners and physician assistants), and staff nurses should insert external catheters.

9. Which factors determine the removal of a port after the completion of definitive therapy?

Ports must be removed after completion of the definitive therapy in cancers with a low risk of early relapse, based on minimal future vascular access needs and a favorable prognosis or treatment completion.

10. How frequently should a central line be flushed if not in use?

Ports should be flushed at intervals ranging from 4 to 12 weeks according to specific local protocols; external catheters require weekly flushing.

2023-2025 – PROTOCOLLI DI INSERZIONE DI ACCESSI VENOSI PEDIATRICO-NEONATALI

- Bundle per la inserzione di accessi venosi centrali ecoguidati in età neonatale e pediatrica
- Bundle per la inserzione dei cateteri venosi ombelicali
- Bundle per la inserzione dei cateteri epicutaneo-cavali
- Consensus sulla tip location degli accessi venosi centrali

Original research article

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2023, Vol. 24(6) 1477–1488
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A GAVeCeLT bundle for central venous catheterization in neonates and children: A prospective clinical study on 729 cases

Mauro Pittiruti[1], Davide Celentano[2], Giovanni Barone[3], Vito D'Andrea[4], Maria Giuseppina Annetta[5] and Giorgio Conti[2]

2023

GAVePed
Gruppo Accessi Venosi Pediatrici

Clinical trial protocol

The Journal of Vascular Access
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Systematic application of SICA-PED protocol for central venous catheterization in neonates: A prospective clinical study on 104 cases

Ferdinando Spagnuolo[1], Anna Maietta[1], Umberto Pugliese[1], Emanuele Lettieri[1], Fabrizio Minopoli[1], Nicola Coppola[2], Marco La Verde[3], Margherita Macera[4], Caterina Monari[4], Lorenzo Onorato[2] and Mauro Carpentieri[1]

2024

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SICA-Ped **2023**

1. Scelta ragionata della vena mediante esame ecografico sistematico (RaCeVA – RaPeVA - RaFeVA)
2. Tecnica asettica appropriata: igiene delle mani, massime protezioni di barriera e antisepsi cutanea con clorexidina 2% in IPA 70%
3. Utilizzo dell'ecografo per la venipuntura ecoguidata della vena prescelta e per il successivo controllo ecografico della assenza di pneumotorace o di altre complicanze legate alla inserzione
4. Verifica intra-procedurale della posizione centrale della punta mediante la tecnica dell'ECG intracavitario e/o mediante ecocardiografia
5. Tunnellizzazione del catetere per ottenere l'exit site in posizione ottimale
6. Protezione del sito di emergenza mediante colla in cianoacrilato
7. Stabilizzazione del catetere mediante 'sutureless device' e membrana trasparente semipermeabile.

Techniques in vascular access

JVA The Journal of Vascular Access

The Journal of Vascular Access
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A novel neonatal protocol for Safe Insertion of Umbilical Venous Catheters (SIUVeC): Minimizing complications in placement and management

Giovanni Barone[1], Mauro Pittiruti[2], Giorgia Prontera[3], Gina Ancora[1] and Vito D'Andrea[3]

2024

GAVePed
Gruppo Accessi Venosi Pediatrici

2024

Table 1. The eight steps of the SIUVeC protocol.

Pre-procedural evaluation (including US evaluation).
Adoption of pre-assembled insertion kits.
Appropriate aseptic technique (hand hygiene, maximal barrier precautions, skin antisepsis with 2% chlorhexidine in 70% isopropyl alcohol).
Vein cannulation using the smallest catheter that may meet the infusion requirements and choosing widely between single versus double lumen UVC.
Real-time tip navigation and tip location by US (according to the NeoECHOTIP protocol).
Securement of the catheter and protection of the exit site (combining sutureless devices, cyanoacrylate glue, semipermeable transparent membranes).
Post-procedural serial assessment of tip location by US.
Early removal of the device (within 4–5 days).

Techniques in vascular access

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JVA | The Journal of Vascular Access

The SIECC protocol: A novel insertion bundle to minimize the complications related to epicutaneo-cava catheters in neonates

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Vito D'Andrea[1], Mauro Pittiruti[2], Giorgia Prontera[1], Gianni Vento[1] and Giovanni Barone[3]

2024

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2024

Table 1. The seven steps of the SIECC protocol.

1. Pre-procedural evaluation of superficial veins (including the RaSuVA protocol)
2. Adoption of pre-assembled insertion kits
3. Appropriate aseptic technique (hand hygiene, maximal barrier precautions, skin antisepsis with 2% chlorhexidine in 70% isopropyl alcohol)
4. Intra-procedural assessment of tip navigation and tip location by ultrasound (adopting the Neo-ECHOTIP protocol)
5. Securement of the catheter and protection of the exit site
6. Post-procedural serial assessments of tip location by ultrasound
7. Removal of the device within 2 weeks

Editorial

GAVeCeLT Gli Accessi Venosi Centrali a Lungo Termine

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An Italian expert consensus on the choice of the method of tip location for central venous access devices

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Vincenzo Faraone[1], Mauro Pittiruti[2], Maria Giuseppina Annetta[3], Giovanni Barone[4], Fabrizio Brescia[5], Maria Calabrese[6], Antonella Capasso[7], Giuseppe Capozzoli[8], Vito D'Andrea[9], Sonia D'Arrigo[3], Daniele Elisei[10], Stefano Elli[11], Igor Giarretta[12], Antonio Gidaro[13], Davide Giustivi[14], Emanuele Iacobone[10], Rossella Mastroianni[15], Fulvio Pinelli[16], Giancarlo Scoppettuolo[17], Ferdinando Spagnuolo[18], Geremia Zito Marinosci[19], Gilda Pepe[2] and Daniele G Biasucci[20]

2025

IVAS
Italian Vascular Access Society

Table 1. Summary of panel recommendations: indications of intra- and post-procedural tip location.

Intra-procedural tip location

Intraprocedural verification of tip position is always indicated: it should be performed during insertion/implantation of any CVAD, whether in neonate, child, or adult, whether in election or emergency, with the possible exception of CVADs inserted under conditions of extreme clinical emergency (e.g. UVC placement during neonatal resuscitation or CICC placement in children/adults in cardiorespiratory arrest).

Post-procedural tip location

2025

Post-procedural tip location is indicated:

- When intraprocedural tip location was impossible due to clinical emergency.
- In rare but possible cases in which the main intraprocedural tip location methods (IC-ECG and TTE) were both found to be inapplicable or infeasible or associated with uncertain results.
- In case of a CVAD placed in another hospital, or not used for a long time, or with history of previous tip migration (secondary tip malposition).
- In case of device malfunction (e.g. persistent withdrawal occlusion).
- In the case of dislocation of the extracutaneous tract of the device (unless the dislocation is obviously incompatible with a central position of the tip).
- In the newborn with CVADs at high risk of dislocation and/or tip migration, such as UVC (where tip location should be checked every 48 h) or ECC (where tip location should be checked weekly).
- In infants/children with long-term CVADs whose tip may no longer be central, due to patient growth.

2025

Table 2. Summary of panel recommendations: indications of the different methods of tip location.

Intracavitary ECG (IC-ECG)

The IC-ECG method is recommended as the intraprocedural method of first choice for the tip location of any CVAD whose tip is to be placed near the junction between superior vena cava and right atrium, or inside the right atrium (with the exception of ECC in the newborn). In its conventional version, the method is applicable only when a P wave is well identifiable on the surface ECG tracing. In its modified version, the IC-ECG method is applicable in atrial fibrillation, if f-wave amplitudes are clearly distinguishable; however, in such a situation it is also recommended to combine the modified IC-ECG method with an intraprocedural tip location by TTE with bubble test, or—if this is not applicable or not feasible—with a post-procedural radiological tip location. The IC-ECG method is also applicable in ECC from the superior vena cava, although in this case the method of first choice is TTE with bubble test.

Fluoroscopy

Fluoroscopy is generally contraindicated for intraprocedural tip location because (a) it has lower accuracy than IC-ECG and TTE, (b) it is potentially harmful because it exposes both patient and operator to radiation, and (c) it is burdened with significant use of resources (high cost, dedicated room, etc.). In the newborn, the use of fluoroscopy for the purpose of tip location of central venous accesses is never justified. In children and adults, tip location by fluoroscopy may be indicated only in extremely complex cases, such as in some placements of permanent dialysis catheter, (a) if fluoroscopy is necessary for tip navigation, or (b) if simultaneous use of angiographic visualization techniques and/or interventional radiology techniques is planned at the same time as CVAD placement. In these situations, considering the inaccuracy of fluoroscopy as a method of tip location, it is wise to supplement the maneuver—where applicable and feasible—with a tip location by IC-ECG and/or TTE with bubble test.

2025

Trans-esophageal echocardiography (TEE)

Intraprocedural tip location by TEE, while being the "gold standard" in terms of accuracy (if the tip location is planned at the superior cavo-atrial junction, in the right atrium, or at the inferior cavo-atrial junction), has limited clinical indications because it is invasive, expensive, potentially associated with complications, and because it requires specific training. In the newborn, intraprocedural tip location by TEE may have indication only in exceptional cases. Intraprocedural tip location by TEE has potential indication in children and adults, limited to those rare cases where insertion of a CVAD and placement of a transesophageal ultrasound probe are simultaneously indicated.

Trans-thoracic echocardiography (TTE)

Intraprocedural tip location by TTE is indicated as the first option in the following situations:

- In the newborn, for the tip location of UVC, ECC, FICC;
- for the tip location of ultrasound-guided CICC in the newborn (in this case, both TTE and IC-ECG may be considered equally appropriate);
- in children and adults, for any FICC or FICC-port, if the tip is planned to be either in the right atrium or at the junction of the inferior cava and right atrium or in the subdiaphragmatic cava;
- in children and adults, for any CICC, PICC, chest-port, or PICC-port, when IC-ECG has limitations in its applicability and/or feasibility, or as a complement to the IC-ECG method in cases where interpretation is uncertain.

2023-2025 – RACCOMANDAZIONI GENERALI SUI DISPOSITIVI PER ACCESSO VENOSO PEDIATRICO-NEONATALI

- Proposta di corretta nomenclatura dei dispositivi di accesso venoso
- Raccomandazioni su indicazioni, impianto e gestione degli accessi venosi neonatali
- Raccomandazioni di buone pratiche dell'accesso venoso nel neonato e nel bambino

RACCOMANDAZIONI SU INDICAZIONI, IMPIANTO E GESTIONE DEGLI ACCESSI VENOSI NEONATALI

2025

Un progetto del gruppo di studio europeo NEVAT (Neonatal Vascular Access Team)

In corso di pubblicazione

2025

RACCOMANDAZIONI DI BUONE PRATICHE DELL'ACCESSO VENOSO NEL NEONATO E NEL BAMBINO

Un progetto dell'Istituto Superiore di Sanità, che vede la collaborazione di IVAS, SIAATIP, SARNePI, ed altre società scientifiche – *in corso di elaborazione*

ISTITVTO SVPERIORE DI SANITA

IVAS
ITALIAN VASCULAR ACCESS SOCIETY

SOCIETÀ ITALIANA ANESTESIA ANALGESIA TERAPIA INTENSIVA PEDIATRICA
SIAATIP

S.A.R.N.eP.I.
Società di Anestesia e Rianimazione Neonatale e Pediatrica Italiana

UN PROGETTO WOCOVA-GLOVANET

JVA The Journal of Vascular Access

Editorial

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

2024

Matheus (Roland) van Rens[1], Robin van der Lee[1], Timothy R Spencer[2], Ton van Boxtel[3], Giovanni Barone[4], Alessandro Crocoli[5], Fulvio Pinelli[6], Mauro Pittiruti[7], on behalf of the WoCoVA Foundation (World Conference on Vascular Access) and of the Global Vascular Access Network (GloVANet)

C'ERA BISOGNO DI UNA STANDARDIZZAZIONE DELLA NOMENCLATURA DEGLI ACCESSI VENOSI?

- Assolutamente sì
- Facciamo alcuni esempi…

ALCUNI ESEMPI

Terminologia ambigua/non condivisa nell'indicare gli accessi venosi periferici:

1) Molti lavori (e linee guida!!!) parlano di PIVC (*peripheral intravenous catheters*) riferendosi in realtà soltano alle agocannule, trascurando altri dispositivi di accesso venoso periferico (mini-midline e midline).

2) Quasi tutti i lavori provenienti dagli USA utilizzano il termine '*midline*' per indicare qualunque dispositivo periferico lungo più di 6 cm, accumunando quindi i *mini-midline* (cateteri periferici lunghi) e i *midline*, benché questi siano dispositivi molto differenti tra loro.

	LPC	MC
Design		
Length	6–15 cm	>15 cm
Technique of insertion		
Veins chosen for cannulation	Superficial and deep veins of forearm and arm	Deep veins of the arm
Technique of venipuncture	Direct venipuncture, or ultrasound guided venipuncture	Ultrasound guided venipuncture
Technique of catheter insertion	Catheter over needle, or catheter over guidewire (simple Seldinger technique)	Catheter through introducer (modified Seldinger technique)
Tunneling, if required	No	Yes
Position of the tip	Veins of the upper limb	Axillary vein (thoracic tract) or subclavian vein
Subcutaneous anchorage, if required	No	Yes
Performance		
Blood sampling	No	Yes
Expected duration	1–3 weeks	Months
Complications		
Risk of dislodgment	High	Low
Local thrombophlebitis	Frequent	Very rare
Risk of malfunction	High	Low

	LPC	MC
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Length	6–15 cm	>15 cm
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ALCUNI ESEMPI

Terminologia ambigua/non condivisa nell'indicare gli accessi venosi centrali:

1) Molti lavori (e linee guida!!!) ancora parlano di CVC (*central venous catheters* = *cateteri venosi centrali*) riferendosi in realtà soltano ai CICC, trascurando altri dispositivi di accesso venoso centrale (PICC, FICC, port)

2) Molti lavori neonatali utilizzano per i cateteri epicutaneo-cava (ECC) il termine 'PICC', così da confondere tali dispositivi – esclusivamente neonatali – con i PICC ecoguidati utilizzati nel bambino e nell'adulto, benché si tratti di dispositivi molto differenti tra loro.

	ECC (n-PICC)	PICC
Patient population		
	Neonates	Children and adults
Design		
Caliber	1–2.7 Fr	3–6 Fr
Power injectability	No	Yes
Technique of insertion		
Vein chosen for cannulation	Any superficial vein of the upper limb, lower limb, or scalp	Veins of the arm (basilica, brachial, cephalic)
Technique of venipuncture	Direct puncture of visible veins	Ultrasound guided venipuncture
Technique of catheter insertion	Catheter through needle, or catheter through cannula	Catheter through introducer (modified Seldinger technique)
Tunneling, if required	No	Yes
Subcutaneous anchorage, if required	No	Yes
Performance		
Expected flow	Low	High
Blood sampling	No	Yes
Blood transfusions	No	Yes
Hemodynamic monitoring	No	Yes
Expected duration	1–2 weeks	Months
Complications		
Risk of lumen occlusion	High	Low
Risk of dislodgment	High	Low
Local thrombophlebitis	Frequent	Very rare

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Patient population		
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Caliber	1–2.7 Fr	3–6 Fr
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ALCUNI ESEMPI

Terminologia inappropriata nell'indicare gli accessi venosi centrali:

1) Quasi tutti i lavori provenienti dagli USA utilizzano il termine '*tunneled catheters*' dando per scontato (a) che si tratti di cateteri cuffiati, (b) che si tratti di cateteri venosi centrali, (c) che si tratti di CICC, (d) che si tratti di dispositivi in silicone. Tutte assunzioni arbitrarie, considerando la evoluzione degli accessi venosi dell'ultima decade.
2) Nella pratica clinica e – purtroppo – anche in molti lavori, dilaga la cattiva abitudine di indicare i dispositivi con il nome commerciale, anche quando si tratti di DAV di altra ditta.

ALCUNI ESEMPI

'*port-a-cath*' …. per indicare i port di qualunque marca

'*hickman*' … per indicare cateteri tunnellizzati cuffiati di qualunque marca

'*ledercath*' … per indicare cateteri *mini-midline* di qualunque marca

'*vas-cath*' …. per indicare cateteri per dialisi non tunnellizzati di qualunque marca

'*arrow*' ….per indicare CICC non tunnellizzati di qualunque marca

…. E così via.

QUINDI: NECESSITÀ DI FAR CHIAREZZA E DI DEFINIRE UNA TERMINOLOGIA APPROPRIATA

- Progetto proposto da due esperti WoCoVA (R.van Rens e R.van der Lee), approvato dai principali coordinatori di WoCoVA/GloVANet (T.Spencer, T.van Boxtel, M.Pittiruti), con il coinvolgimento di tre esperti WoCoVA con specifiche competenze negli accessi venosi nel neonato (G.Barone), nel bambino (A.Crocoli) e nell'adulto (F.Pinelli).
- Metodo Delphi modificato (con riunioni sia in remoto che in presenza), con votazione finale unanime per tutte le definizioni.

PREMESSA: DEFINIZIONE APPROPRIATA DI DAV CENTRALE VS. DAV PERIFERICO

DAV centrale = qualunque dispositivo venoso abbia la punta in vena cava superiore, atrio destro, o vena cava inferiore

(anche - se a seconda del tipo di paziente, del dispositivo, e dell'utilizzo previsto – determinate posizioni della punta saranno più raccomandabili di altre)

ALTRA PREMESSA: CLASSIFICAZIONE APPROPRIATA DEI DAV CENTRALI

CICC – cateteri centrali ad inserzione cervico-toracica

PICC – cateteri centrali ad inserzione brachiale

FICC – cateteri centrali ad inserzione femorale

(classificazione già proposta anni fa dal WoCoVA e dal GAVeCeLT e riportata anche nelle linee guida ESA del 2020)

EJA

Eur J Anaesthesiol 2020; **37**:344–376

2020

GUIDELINES

European Society of Anaesthesiology guidelines on peri-operative use of ultrasound-guided for vascular access (PERSEUS vascular access)

Massimo Lamperti, Daniele Guerino Biasucci, Nicola Disma, Mauro Pittiruti, Christian Breschan, Davide Vailati, Matteo Subert, Vilma Traškaitė, Andrius Macas, Jean-Pierre Estebe, Regis Fuzier, Emmanuel Boselli and Philip Hopkins

(1) *Centrally inserted central line* is a central venous catheter inserted into a deep vein in the supraclavicular or infraclavicular area.

(2) *Peripherally inserted central line* is a cntral venous catheter inserted into a deep vein of the arm (usually the basilic vein but also the brachial veins).

(3) *Femorally inserted central line* is a central venous catheter inserted into a deep vein at the groin (either the common or the superficial femoral vein).

ALTRA PREMESSA: CLASSIFICAZIONE APPROPRIATA DEI DAV PERIFERICI

DAV periferici = classificati come **cannule periferiche corte** (short peripheral cannulas - SPC), **cateteri periferici lunghi** o mini-midline (long peripheral cannulas - LPC) e **cateteri Midline** o midclavicular (midline catheters - MC

(classificazione che il WoCoVA aveva già proposto nella consensus ERPIUP del 2021)

Review

JVA The Journal of Vascular Access

The Journal of Vascular Access
1–18
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DOI: 10.1177/11297298211023274
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SAGE

European recommendations on the proper indication and use of peripheral venous access devices (the ERPIUP consensus): A WoCoVA project

Mauro Pittiruti[1], Ton Van Boxtel[2], Giancarlo Scoppettuolo[1], Peter Carr[3], Evangelos Konstantinou[4], Gloria Ortiz Miluy[5], Massimo Lamperti[6], Godelieve Alice Goossens[7], Liz Simcock[8], Christian Dupont[9], Sheila Inwood[10], Sergio Bertoglio[11], Jackie Nicholson[12], Fulvio Pinelli[13] and Gilda Pepe[1]

2021

Panel's recommendations:

Peripheral VADs are defined as catheters whose tip is located in the venous system but outside the superior vena cava, the right atrium and the inferior vena cava.

On the basis of their length, they can be classified as follows:

(a) *short peripheral catheters (SPC) (<6 cm): SPC may be further classified as "simple" or "integrated", based on their design and material;*
(b) *long peripheral catheters (LPC) (6–15 cm);*
(c) *midline catheters or "midclavicular" (MC) (>15 cm).*

ULTIMA IMPORTANTE PREMESSA

- Necessità di distinguere i DAV utilizzati nel neonato (che hanno caratteristiche del tutto speciali) e i DAV utilizzati nei bambini e nei pazienti adulti

RISULTATI

La terminologia proposta dal panel di esperti WoCoVA/GloVANet è stata presentata in forma riassuntiva come tabelle.

Dispositivi di accesso venoso periferico nell'adulto e nel bambino

PVAD—peripheral venous access devices

SPC	Short peripheral catheter - catheters with a length of <6 cm. - usually inserted in the forearm
LPC	Long peripheral catheter (a.k.a. mini-midline or short midline) - catheters with a length from 6 to 15 cm - inserted in the forearm or arm - tip located in the veins of the forearm or upper arm
MC	Midline catheter (a.k.a. midclavicular catheter) - catheters longer than 15 cm - inserted in deep veins of the upper arm - tip located in the axillary vein or subclavian vein

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Dispositivi di accesso venoso centrale nell'adulto e nel bambino

CVAD—central venous access devices

PICC	Peripherally inserted central catheters inserted by ultrasound-guided venipuncture of deep veins of the arm (basilic vein, brachial veins, brachial tract of the axillary vein) or of the cephalic vein at the arm.
CICC	Centrally inserted central catheter inserted by ultrasound-guided venipuncture of deep veins of the supra-clavicular area (internal jugular vein, brachiocephalic vein, subclavian vein, deep tract of the external jugular vein) or of the infra-clavicular area (thoracic tract of the cephalic vein, thoracic tract of the axillary vein)
FICC	Femorally inserted central catheter inserted by ultrasound-guided venipuncture of veins of the lower limb (common femoral vein, superficial femoral vein, saphenous vein)
TIVAD	Totally implantable venous access device (or port) - Chest ports, a.k.a. CICC ports - Femoral ports, a.k.a. FICC port - Brachial ports, a.k.a. PICC-ports, a.k.a. arm ports
Tunneled CVAD	
Tc	- Tunneled, and cuffed: Tc-CICC, Tc-PICC, Tc-FICC
Tnc	- Tunneled, but non-cuffed: Tnc-CICC, Tnc-PICC, Tnc-FICC

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Dispositivi di accesso venoso periferico nel neonato

PVAD—peripheral venous access devices

n-SPC	Neonatal short peripheral catheter - catheters with a standard length of <2 cm
n-LPC	Neonatal long peripheral catheter (a.k.a. mini-midline or short midline) - catheters with a length from 2 to 6 cm - tip located in the veins of the arm or leg

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Dispositivi di accesso venoso centrale nel neonato

CVAD—central venous access devices

UVC	Umbilical venous catheter - tip located at the junction between IVC and RA
ECC/n-PICC	Epicutaneo-cava catheter or neonatal peripherally inserted central catheter - for ECC/n-PICC coming through the SVC, the tip may be located (a) in the lower third of the SVC, (b) at the junction between the SVC and RA, (c) in the upper third of the RA - for ECC/n-PICC coming through the IVC, the tip may be located (a) in the subdiaphragmatic IVC (below the hepatic vein but above the renal vein), or (b) at the junction between IVC and RA.
CICC	Centrally inserted central catheter - inserted by ultrasound-guided venipuncture of deep veins of the supra-clavicular area (mainly the internal jugular vein or the brachiocephalic vein) - tip is located (a) at the junction between SVC and RA or (c) in the upper third of the RA
FICC	Femorally inserted central catheter; - ultrasound-guided venipuncture of deep veins of the groin (common femoral vein) - tip may be located (a) in the subdiaphragmatic IVC (below the hepatic vein but above the renal veins), or (b) at the junction between IVC and RA
Tunneling in CICC, FICC	
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OVVIAMENTE UNA DEFINIZIONE UNIVOCA DEL DISPOSITIVO PREVEDE ANCHE ALTRI DETTAGLI

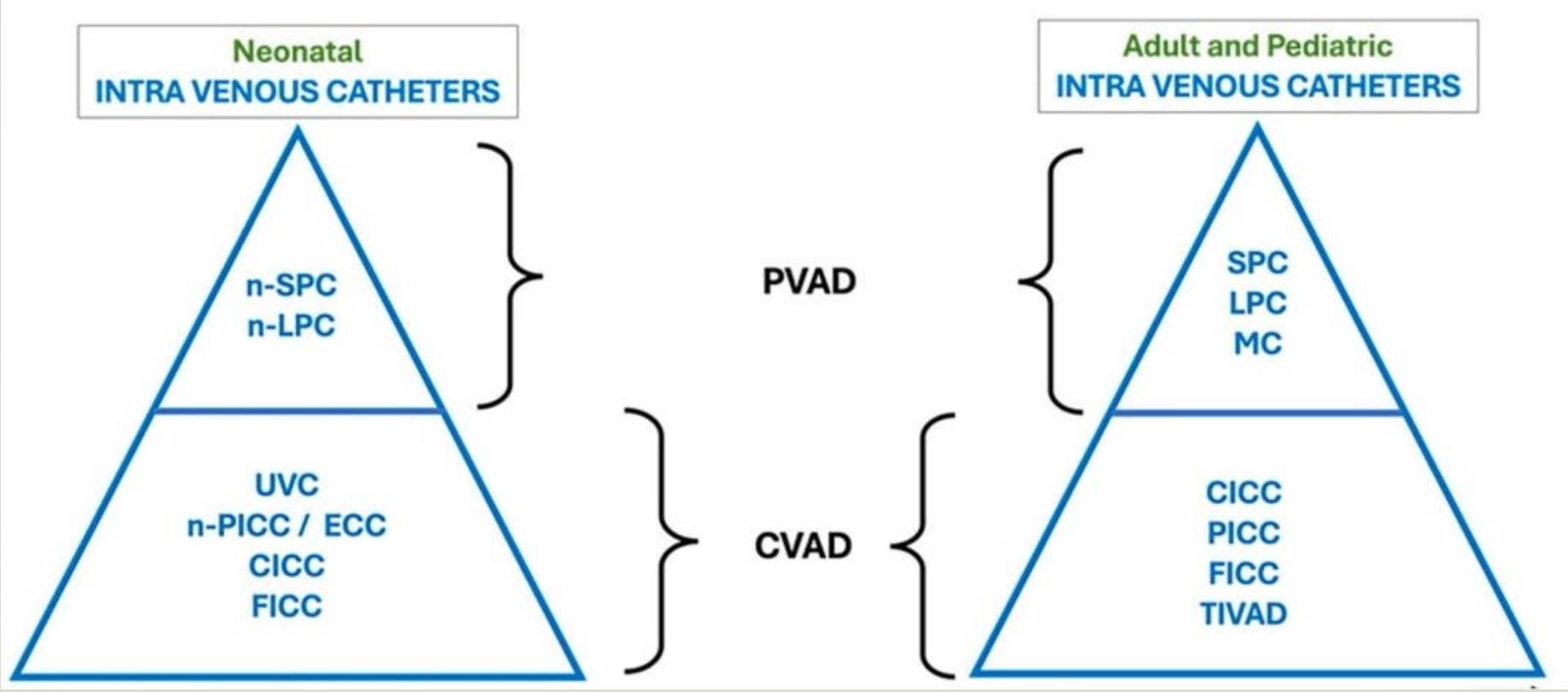
- il **calibro** del DAV: diametro esterno in French (3 Fr = 1 mm) o l'area interna di ogni lume (Gauge);
- il numero di **lumi**;
- la **lunghezza** effettiva del catetere (tratto intravascolare ed extravascolare);
- il **materiale** del catetere: la maggior parte dei PDAV è realizzata in poliuretano (PUR), politetrafluoretilene (PTFE) o poli-etero-blocco-ammide (PEBA); i CDAV sono realizzati in PUR o silicone;
- il materiale e le dimensioni del **reservoir**, nel caso dei TIVAD;
- la '**power injectability**' del DAV;
- la presenza/assenza di **attività antimicrobica o antitrombotica**;
- altre **caratteristiche strutturali** che rendono il DAV appropriato per scopi molto specifici (dialisi, ECMO, ecc.).

INFATTI:

La standardizzazione della terminologia è utile:

- Dal punto di vista **clinico**
  - Migliore trasmissioni di informazioni tra medici/infermieri
- Dal punto di vista **scientifico**
  - Possibilità di comparare studi clinici diversi senza fraintendimenti
- Dal punto di vista **didattico**
  - Per insegnare/imparare in modo più semplice ed efficace

Una terminologia da adottare sia nella pratica clinica che nei lavori scientifici che nelle attività educazionali



CONCLUSIONI

2023-2025: UN BIENNIO IMPORTANTE !

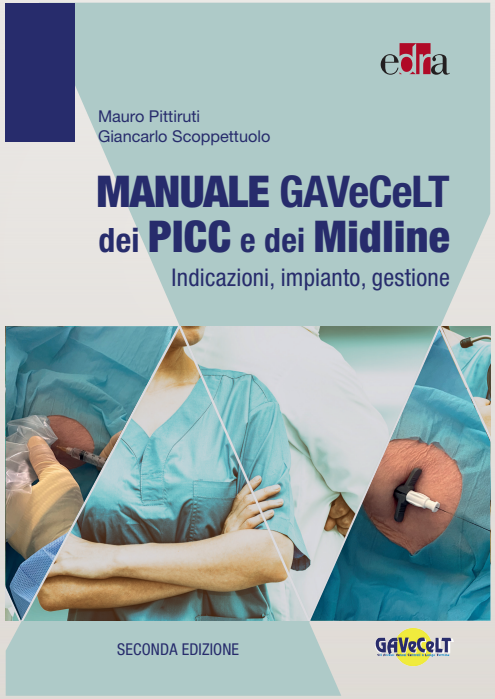
- Nuovi documenti sulla scelta del dispositivo in ambito pediatrico-neonatale
- Nuovi protocolli di inserzione di accessi venosi pediatrico-neonatali
- Nuove raccomandazioni generali sui dispositivi per accesso venoso pediatrico-neonatali

2023-2025: UN BIENNIO IMPORTANTE !

Si tratta di algoritmi e protocolli – recentissimi e validi - che DEVONO essere integrati nelle nostre procedure aziendali e soprattutto nella nostra pratica clinica.

TESTI DI RIFERIMENTO

2022



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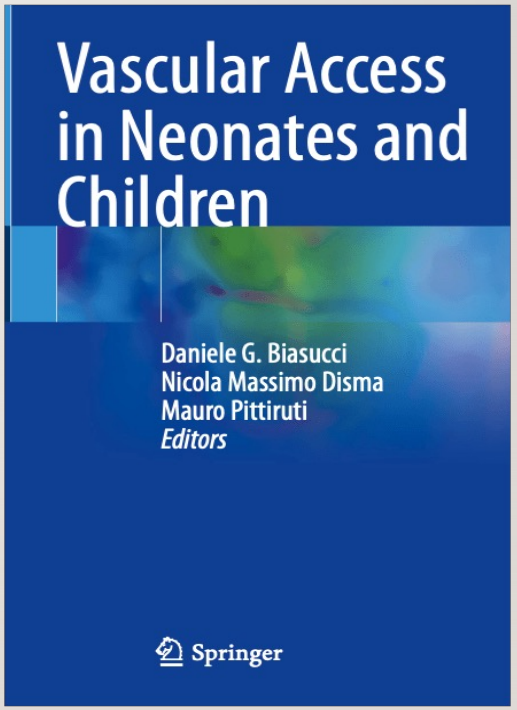

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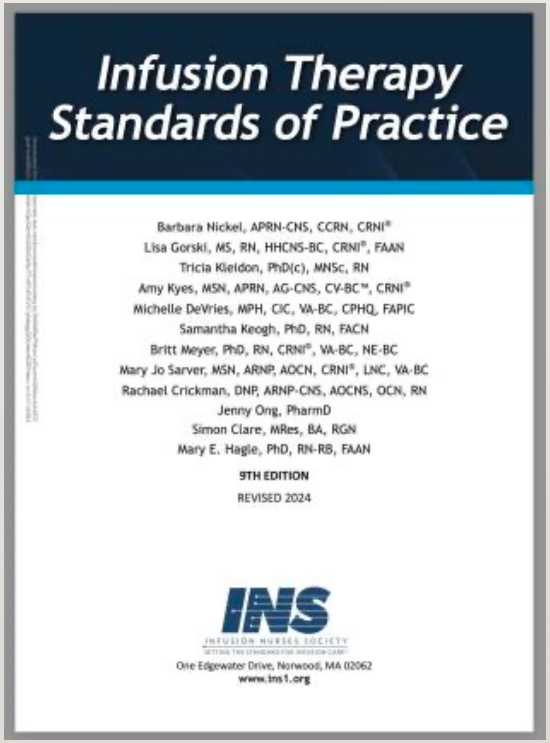

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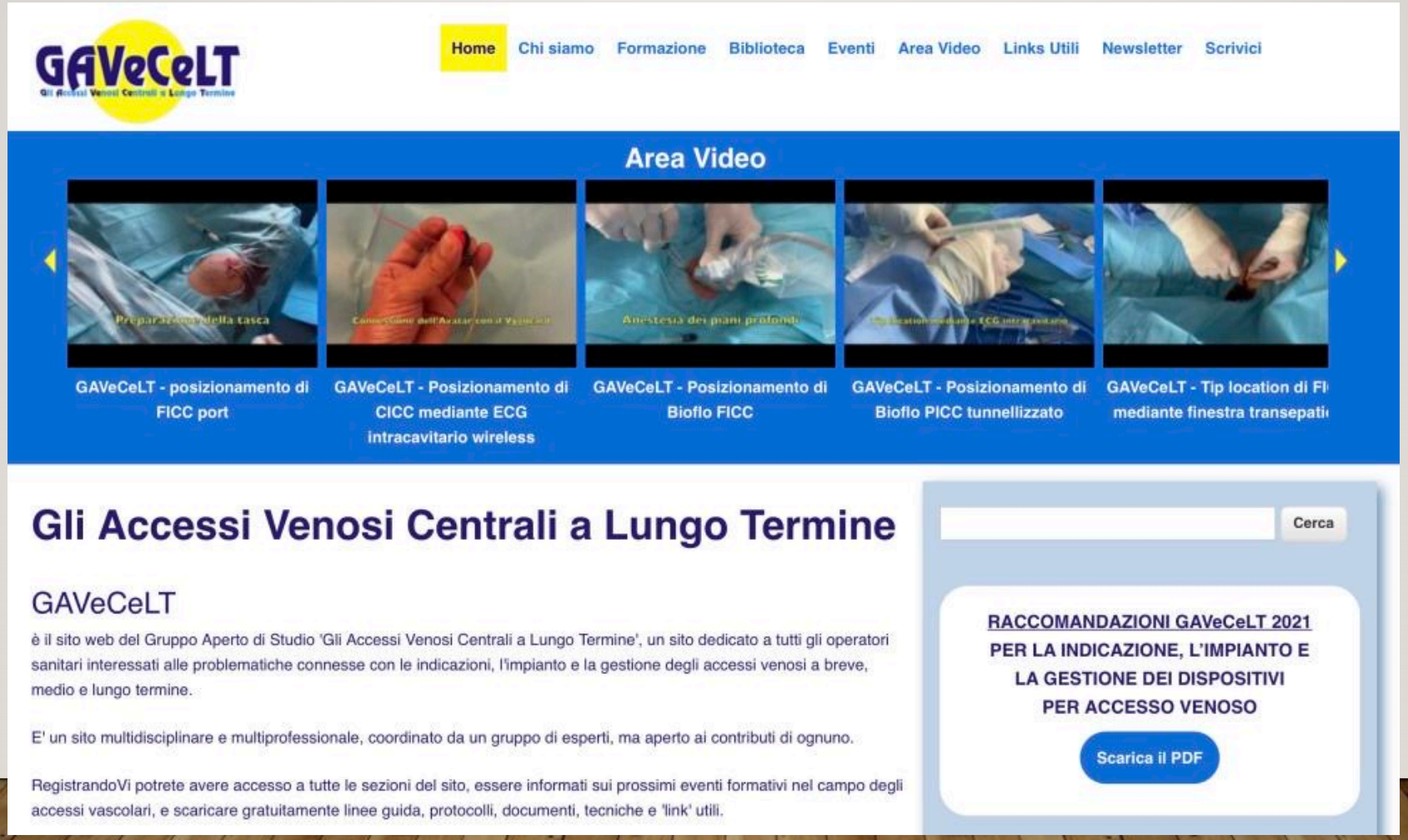

GRAZIE DELL'ATTENZIONE

mauropittiruti@me.com

www.gavecelt.it