

Analisi Critica della Consensus AVA 2024 sui Dispositivi per Accesso Venoso Periferico

Fulvio Pinelli
Firenze



2024

ORIGINAL ARTICLE

Standards of Care for Peripheral Intravenous Catheters: Evidence-Based Expert Consensus

Judy Thompson, MSNEd, RN, VA-BC

Association for Vascular Access, San Diego, CA

Marlene M. Steinheiser, PhD, RN, CRNI

Infusion Nurses Society, Norwood, MA

J. Blake Hotchkiss, MSN, MBA, RN, VA-BC

MaineHealth Franklin Hospital, Farmington, ME

Thompson J et al. JAVA 2024

Metodologia

- AVA = Association for Vascular Access
- 13 esperti (AVA, ECRI, INS, AACN)
- RAND/UCLA Appropriateness Method
- Obiettivo: fornire una guida clinica per migliorare e standardizzare le pratiche di inserzione, gestione e rimozione del PIVC (peripheral intravenous catheter).
- Risultati: 123 raccomandazioni (16 gruppi)

16 gruppi di raccomandazioni

1. Assess Intravenous Access Needs
2. Educate, Inform, and Collaborate with Patients and Caregivers
3. Ensure Clinician Education and Competency
4. Ensure safety
5. Choose the Right Insertion Site and Device
6. Pain Reduction and Comfort Strategies
7. Maximize First Insertion Success
8. Insert and Secure
9. Routine Use and Post-Insertion Care
10. Ongoing Need
11. PIVC Removal
12. Documentation
13. Remove and Replace Only if Needed
14. PIVC Quality Management
15. Psychological and Cultural Safety
16. Health Equity and Social Determinants of Health

Primo problema: la fruibilità del documento

- 123 raccomandazioni
- 16 (!!) gruppi di raccomandazioni, un pò confusi
- Molto più utile sarebbe stato uno schema “classico”:
 1. Definizione
 2. Scelta
 3. Inserimento
 4. Gestione
 5. Rimozione

Secondo problema: la terminologia

«**Peripheral intravenous catheter (PIVC)** – is a catheter inserted into and resides in veins of the periphery»

AVA consensus on PIVC 2024

A quale tipo di VAD periferico si riferisce??

Terminologia

- Il documento AVA si riferisce a **un tipo di VAD periferico**: la **cannula periferica corta (SPC)**
- Il documento AVA ignora completamente gli **altri VAD periferici** **(e, quindi, la loro relativa classificazione)**

Classification of peripheral VADS

GAVeCeLT 2018

	Short cannulas	Long cannulas	Midline
Length	< 6 cm	6-15 cm	> 15 cm
Material	PTFE, PUR	PUR, PEBA	PUR, SIL
Insertion	blind	blind or US	blind or US
Technique	direct cannulation	simple Seldinger	modified Seldinger
Ok for emergency?	yes	yes	no
Duration	days	weeks	months
Power injectability	if 20G or >	yes	Not always
Extra-hospital use	no	yes (short time)	yes

Classification of peripheral VADS

AUSTRALIA 2018

Table 1. Comparison of peripheral venous access devices.

	Peripheral intravenous catheter	Long peripheral catheter	Midline catheter
Length	3–6 cm	6–15 cm	15–25 cm
Catheter tip extension	Distal to the axilla	Distal to the axilla	Infra/supraclavicular region
Insertion site	At or distal to the antecubital fossa	Forearm, antecubital fossa or upper arm	Antecubital fossa or upper arm
Material	PTFE, PUR	PUR, PEBA	PUR, silicone
Insertion technique	Catheter-over-needle	Catheter-over-needle Catheter-over-guidewire (direct Seldinger)	Catheter-over-guidewire with tissue dilator (modified Seldinger)
Cost ^a	\$6	\$44	\$160

Classification of peripheral VADS

ERPIUP 2021

Consensus paper

JVA | The Journal of
Vascular Access

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

The Journal of Vascular Access
2023, Vol. 24(1) 165–182
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/11297298211023274
journals.sagepub.com/home/jva


**Mauro Pittiruti¹ , Ton Van Boxtel² , Giancarlo Scoppettuolo¹,
Peter Carr³, Evangelos Konstantinou⁴, Gloria Ortiz Miluy⁵,
Massimo Lamperti⁶, Godelieve Alice Goossens⁷, Liz Simcock⁸,
Christian Dupont⁹, Sheila Inwood¹⁰, Sergio Bertoglio¹¹ , Jackie
Nicholson¹², Fulvio Pinelli¹³  and Gilda Pepe¹**

Classification of peripheral VADS

ERPIUP 2021

In base alla loro lunghezza, i PVAD possono essere classificati come segue:

- a) cateteri periferici corti (SPC) (<6 cm): SPC possono essere ulteriormente classificati come "semplici" o "integrati" in base alla loro struttura e al loro materiale;
- b) cateteri periferici lunghi (LPC) (6-15 cm);
- c) cateteri midline (MC) (>15 cm).

Classification of peripheral VADS

NAVIGATE 2024

Editorial

JVA | The Journal of
Vascular Access

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

The Journal of Vascular Access
1–8

© The Author(s) 2024

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/11297298241291248

journals.sagepub.com/home/jva

 Sage

**Matheus (Roland) van Rens¹ , Robin van der Lee¹,
Timothy R Spencer² , Ton van Boxtel³ , Giovanni Barone⁴ ,
Alessandro Crocoli⁵ , Fulvio Pinelli⁶ , Mauro Pittiruti⁷ , on behalf of the WoCoVA
Foundation (World Conference on Vascular Access) and of the Global Vascular
Access Network (GloVANet)**

Classification of peripheral VADS

NAVIGATE 2024

Table 3. Terminology of Venous Access Devices in the ADULT and PEDIATRIC Population	
PVAD – Peripheral Venous Access Devices	
SPC	Short Peripheral Catheter - catheters with a length of < 6cm. - usually inserted in the forearm
LPC	Long Peripheral Catheter (a.k.a. mini-midline or short midline) - catheters with a length from 6 cm 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

Due tipi di SPC: semplice vs integrata



	Simple cannulas	‘Integrated’ cannulas
Material	PUR or PTFE	PUR
Design	Usually, no wing + no extension	Large wing + pre-assembled extension & NFC
Indication	Emergency/short time access	Access for prolonged i.v. treatment
Enviroment	Emergency room, OR, radiology suite	Ward
Expected duration	24-48 hrs	1-7 days
Cost	Low	high

SPC semplice

- Calibro: da 14G a 26G
- Materiale: Poliuretano (Teflon = non consigliato)
- Il disegno può variare, in quanto possono essere presenti/assenti diverse funzionalità:
 - «no stick injury»
 - «blood stop»
 - port laterale
 - prolunga preassemblata
 - connettore *needlefree* preassemblato



SPC integrata

Editorial

The integrated short peripheral cannula: A new peripheral venous access device?

Fulvio Pinelli¹  and **Mauro Pittiruti²** 

JVA | The Journal of
Vascular Access



SPC integrata = no stick + blood-stop + piattaforma + prolunga preassemblata e
connettore preassemblato senza ago

Terzo problema: alcuni contenuti sono carenti

- Non ci sono raccomandazioni esaustive sull'antisepsi cutanea o sulle medicazioni
- Non suggerisce un bundle di inserimento specifico
- Non suggerisce un bundle di gestione specifico

Ad esempio, circa l'antisepsi cutanea

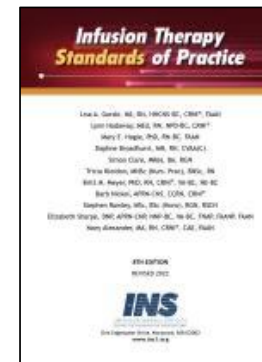
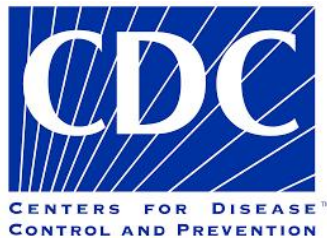
Insert and secure (b)

*«Use an alcohol-based **chlorhexidine solution** as a first-line antiseptic solution; If sensitive to chlorhexidine, use povidone iodine, preferably with alcohol»*

AVA consensus on PIVC

Antisepsi cutanea

Chlorhexidine gluconate 2% in 70% PAH



Antisepsi cutanea

ERPIUP 2021

*«Prepare the skin with **2% chlorhexidine in 70% isopropyl alcohol** using **30s friction** and allowing **30s to dry**»*

Ad esempio, circa la stabilizzazione del device e protezione dell'exit site

Insert and secure (d)

«Clinicians **secure the PIVC (??)** and **apply a sterile dressing (??)** upon successful PIVC insertion and with routine dressing changes to avoid accidental dislodgement»

AVA consensus on PIVC 2024

*«**Bordered transparent dressing** is a simple and reliable securement and should be the first choice when the SPC must stay in place for several days. **Cyanoacrylate glue** may also play an important additional role in this regard»*

KEY DEFINITIONS

Adhesive securement device (ASD): an adhesive-backed device that adheres to the skin with a mechanism to hold the vascular access device (VAD) in place; a separate dressing is placed over the ASD. Both the dressing and ASD must be removed and replaced at specific intervals during the VAD dwell time.

Integrated securement device (ISD): a device that combines a dressing with securement functions; includes transparent, semipermeable window, and a bordered fabric collar with built-in securement technology.

Subcutaneous anchor securement system (SASS): a securement device that anchors the VAD in place via flexible feet/posts that are placed just beneath the skin; these act to stabilize the catheter right at the point of insertion. A separate dressing is placed over the SASS. The SASS does not need to be changed at regular intervals when the dressing is changed; it can remain in place if there are no associated complications.

Tissue adhesive (TA): a medical-grade cyanoacrylate glue that can seal the insertion site and temporarily bond the catheter to the skin at the point of insertion and under the catheter hub. Depending on the chemical makeup, TA may be reapplied at each dressing change. Various formulations of TA for wound closure are commercially available, including first generation *N*-Butyl-2-cyanoacrylate (quick drying, rigid/brittle), second generation 2-octyl-cyanoacrylate (longer dry time, more flexible) and *N*-Butyl-2octyl cyanoacrylate formation (increased tensile strength and flexibility) with an additional indication for vascular access securement. Each TA formulation has varied properties and the clinical decision to use should be based on research outcomes relative to the chosen product.

*«Evaluate the use of securement options, such as **TA**, in addition to a primary dressing or an **ISD** for enhanced catheter stabilization **for peripheral intravenous catheters (PIVCs)**, particularly in high-risk patients such as those with difficult intravenous access (DIVA) and prolonged catheter dwell»*

Protezione dell'exit site

EPIC 2014

«IVAD 17: use a **sterile, transparent, semipermeable polyurethane** dressing to cover the intravascular insertion site »

Protezione dell'exit site

ERPIUP 2021

*«All PVADs should have the exit site covered and protected with **semipermeable transparent dressings** »*

«sterile dressing» è un pò poco...

Quarto problema: alcuni contenuti sono «discutibili»

- Suggerisce "pellicole di barriera cutanea" (??)
- Suggerisce una "medicazione che rilascia CHG" (??)
- Considera l'uso di garze (??)
- Accetta l'uso di SPC per la somministrazione di vescicanti (??!!)

«Pellicole di barriera cutanea»

Insert and secure (e)

*«Clinicians should consider the use of **tissue adhesive** and **skin barrier film** to improve dressing adherence and prevent dressing disruption and device dislodgement»*

AVA consensus on PIVC 2024

Medicazioni a rilascio di CHG

Insert and secure (h)

«*Healthcare organizations consider the potential benefit of **chlorhexidine-containing dressings***»

AVA consensus on PIVC 2024

1. O'Grady, Naomi P., et al. **CDC 2011**
2. Nickel B, Gorski L, Kleidon T, et al. **INS 2024**
3. Porritt K. Peripheral intravenous catheter (PIVC) care: dressings and catheter securement.
The JBI EBP Database 2023

Medicazioni a rilascio di CHG

CDC 2011

12. Use a chlorhexidine-impregnated sponge dressing for temporary short-term catheters in patients older than 2 months of age if the CLABSI rate is not decreasing despite adherence to basic prevention measures, including education and training, appropriate use of chlorhexidine for skin antisepsis, and MSB [93, 96–98]. Category 1B

Medicazioni a rilascio di CHG

INS 2024

-
- I. Use chlorhexidine gluconate (CHG)-containing dressings to prevent CLABSIs in patients greater than 2 months of age with short-term CVADs, unless contraindicated (eg, sensitivity or allergy to CHG), including patients with oncohematological disease (see Standard 39, *Vascular Access Device Post-Insertion Care*).^{1,20,23-31} (I)

Medicazioni a rilascio di CHG

SHEA 2022

The use of chlorhexidine-containing dressings is now considered an “essential practice”; in the past, it was listed under special approaches that should only be employed if CLABSI rates remain high despite the implementation of basic practices.

Use chlorhexidine-containing dressings for CVCs in patients over 2 months of age (Quality of Evidence: HIGH)^{45,135-142}

- a. It is unclear whether there is additional benefit with use of a chlorhexidine-containing dressing if daily chlorhexidine bathing is already established and vice-versa.
- b. For long-term catheters (eg, hemodialysis catheters) in well-healed access sites, it is unclear whether use of a chlorhexidine dressing reduces risk of infectious complications.^{140,143,144}
- c. For children under 2 months of age, use of chlorhexidine dressings remains unclear, particularly in very preterm or low birthweight infants.⁹⁸

Medicazioni a rilascio di CHG

GAV_ICU 2024

Question 16: Which are the basic post-procedural strategies that reduce the risk of catheter-related infections?

- ***Panel recommendations: (e) adoption of chlorhexidine releasing sponge dressing for non-tunneled central VADs;***

Strong agreement: 26 agree, 0 uncertain, 0 disagree

Medicazioni garzate

Routine use and post-insertion care (c)

«Change gauze dressings every 2 days or earlier if dressing integrity is disrupted»

AVA consensus on PIVC 2024

Medicazioni garzate

EPIC 2014

*IVAD19: Use a sterile gauze dressing **if a patient has profuse perspiration or if the insertion site is bleeding or leaking**, and change when inspection of the insertion site is necessary or when the dressing becomes damp, loosened or soiled. **Replace with a transparent semi-permeable dressing as soon as possible.***

SPC per infusione di vescicanti

Routine use and post-insertion care (a)

- *«**If using the PIVC for vesicant administration**, plan to transition the infusion to a more appropriate VAD or CVAD when clinically possible»*
- *«**For patients receiving antineoplastic vesicants through a PIVC**, assess and verify blood return every 2 to 5 mL for IV push, every 5 minutes during an infusion, and upon completion. Remain with the patient during the entire short-term infusion»*

SPC per infusione di vescicanti

INS 2024

«**Short Peripheral Cannulas: Avoid use for continuous infusion of medication with irritant or vesicant properties. (I)**»

Indicazioni all'accesso venoso centrale



1. necessità di infusione di farmaci con pH <5 o >9 o **vescicanti** o comunque non compatibili con la via venosa periferica;
2. necessità di nutrizione parenterale
3. necessità di emodialisi;
4. necessità di ripetuti prelievi ematici;
5. necessità di monitoraggio emodinamico.

**International Experts Consensus on Optimal Central
Vascular Access Device Selection and Management for
Patients with Cancer**

Journal:	<i>The Journal of Vascular Access</i>
Manuscript ID	JVA-24-0440
Manuscript Type:	Original Research Article
Date Submitted by the Author:	18-Sep-2024
Complete List of Authors:	Jahanzeb, Mohammad; Creative Precision Oncology, an OncAdvisor Practice Wu, Ching-Yang; Chang Gung Memorial Hospital, Linkou, Taiwan Lim, Howard ; BC Cancer, Vancouver, Canada Muro, Kei ; Aichi Cancer Center Hospital, Nagoya, Japan Xu, Lichao ; Fudan University Shanghai Cancer Center, Shanghai, China Somashekhar, Manjiri ; Aster International Institute of Oncology, Bangalore, India S P, Somashekhar; Aster International Institute of Oncology, Bangalore, India Zhang, Xiaotao; Qingdao Central Hospital, University of Health and Rehabilitation Science, Shandong, China Qiu, Xiaoxia ; Renji Hospital, Shanghai Jiaotong University School of Medicine, Shanghai Pudong, China Fu, Ying ; Breast Disease Center, Xianghu Hospital, the First Affiliated Hospital of Nanchang University, Jiangxi Province, China Pittiruti, Mauro; Catholic University Hospital, Rome, Italy, Dept of Surgery

Infusione di vescicanti

Irritant/vesicant drug properties: Infusion solutions are categorized as neutral, irritant, or vesicants based on pH, osmolarity, and other chemical properties. The administration of irritant/vesicant drugs via peripheral vascular access devices (VADs) may be associated with severe complications, such as extravasation, infiltration, phlebitis, tissue damage, and progressive depletion of peripheral veins. CVADs are highly recommended for infusion of any chemically irritating or vesicant drug to minimize the risk of peripheral phlebitis and extravasation.^{24,25} The Infusion Nurses Society (INS)

ORIGINAL ARTICLE

Standards of Care for Peripheral Intravenous Catheters: Evidence-Based Expert Consensus

Judy Thompson, MSNEd, RN, VA-BC

Association for Vascular Access, San Diego, CA

Marlene M. Steinheiser, PhD, RN, CRNI

Infusion Nurses Society, Norwood, MA

J. Blake Hotchkiss, MSN, MBA, RN, VA-BC

MaineHealth Franklin Hospital, Farmington, ME

Si sentiva la necessità di questo documento?

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

The Journal of Vascular Access

2023, Vol. 24(1) 165–182

© The Author(s) 2021

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/11297298211023274

journals.sagepub.com/home/jva



Mauro Pittiruti¹ , Ton Van Boxtel² , Giancarlo Scoppettuolo¹, Peter Carr³, Evangelos Konstantinou⁴, Gloria Ortiz Miluy⁵, Massimo Lamperti⁶, Godelieve Alice Goossens⁷, Liz Simcock⁸, Christian Dupont⁹, Sheila Inwood¹⁰, Sergio Bertoglio¹¹ , Jackie Nicholson¹², Fulvio Pinelli¹³  and Gilda Pepe¹

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

The Journal of Vascular Access
1–8

© The Author(s) 2024

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/11297298241291248

journals.sagepub.com/home/jva



**Matheus (Roland) van Rens¹ , Robin van der Lee¹,
Timothy R Spencer² , Ton van Boxtel³ , Giovanni Barone⁴ ,
Alessandro Crocoli⁵ , Fulvio Pinelli⁶ , Mauro Pittiruti⁷ , on behalf of the WoCoVA
Foundation (World Conference on Vascular Access) and of the Global Vascular
Access Network (GloVANet)**

Conclusioni

- La consensus AVA su SPC è un documento fortemente deficitario:
 - La struttura è scarsamente fruibile
 - La terminologia è antiquata e confondente
 - La classificazione è incompleta
 - Alcuni contenuti sono carenti
 - Alcuni contenuti sono «alquanto discutibili»
- Altri documenti, ben più solidi (ad es. ERPIUP, NAVIGATE), debbono essere presi come riferimento per i PVAD.



Grazie per
l'attenzione

pinellif@gmail.com

WoC**O**VA

